



FALL 2021

# The Bent

Of Tau Beta Pi

THE ENGINEERING HONOR SOCIETY



**Powering Electric Vehicles**

**Association Awards • Scholars**

# ALUMNI CHAPTERS

79 ALUMNI CHAPTERS  
47 ACTIVE

Inactive chapters shown in **BLUE**

## DISTRICT 1

Central CT, Hartford  
Greater Boston Area, MA

## DISTRICT 2

Buffalo, NY  
Central Jersey, NJ  
LI Suburban, NY  
Newark, NJ  
New York City, NY  
New York Capital District, NY  
Rochester, NY  
Southern Tier, Binghamton, NY

## DISTRICT 3

Lehigh Valley, Bethlehem, PA  
Philadelphia, PA  
Pittsburgh, PA  
Wilmington, DE

## DISTRICT 4

Baltimore, MD  
Hampton Roads, Newport News, VA  
Kanawha Valley, Charleston, WV  
Research Triangle, Durham-Chapel Hill-Raleigh, NC  
Richmond, VA  
Washington, DC

## DISTRICT 5

Atlanta, GA  
Central FL, Orlando  
Daytona Beach, FL  
Gainesville, FL  
Miami, FL  
Midlands, Columbia, SC  
Palm Beach/Broward, FL  
Piedmont, Clemson, SC  
Puerto Rico  
Tampa Bay, FL

## DISTRICT 6

Bluegrass, Lexington-Frankfort, KY  
Central Alabama, Birmingham  
Great Smoky Mountains, Knoxville-Oak Ridge, TN  
Greater Gulf Coast, Mobile, AL  
Louisville, KY  
Mid-South, Memphis, TN  
Rocket City, Huntsville, AL

## DISTRICT 7

Ann Arbor Area, MI  
Central MI, Lansing  
Cincinnati, OH  
Columbus, OH  
Dayton, OH  
Flint, MI  
Ohio's North Coast, Cleveland  
SE Michigan, Detroit  
West Michigan, Grand Rapids

## DISTRICT 8

Chicago Area, IL  
Central Illinois, Urbana-Champaign  
Indianapolis, IN  
Milwaukee Area, WI

## DISTRICT 9

Kansas City, KS  
Pioneer, OK  
Rolla, MO  
St. Louis, MO

## DISTRICT 10

Central Texas, Austin/San Antonio  
North Texas, Dallas-Fort Worth  
Greater New Orleans, LA  
Texas Gulf Coast, Houston

## DISTRICT 11

Ames, IA  
Minnesota, Twin Cities, MN

## DISTRICT 12

Pikes Peak, CO  
Front Range, CO/WY  
Salt Lake City, UT  
Treasure Valley, Boise, ID

## DISTRICT 13

Albuquerque, NM  
El Paso, TX  
Phoenix, AZ  
Sun City, AZ  
Tucson, AZ

## DISTRICT 14

Columbia River Basin, Richland, WA  
Portland, OR  
Puget Sound, Seattle, WA

## DISTRICT 15

Sacramento Vly, CA  
SF Bay Area, CA  
SF Peninsula, Palo Alto, CA

## DISTRICT 16

Los Angeles, CA  
Orange County, CA  
Greater San Diego, California  
Southern California

# COLLEGIATE CHAPTERS

256 COLLEGIATE CHAPTERS  
617,909 MEMBERS

6 Inactive chapters shown in **BLUE**

A = ALPHA  
B = BETA  
Γ = GAMMA

Δ = DELTA  
E = EPSILON  
Z = ZETA

H = ETA  
Θ = THETA  
I = IOTA

K = KAPPA  
Λ = LAMBDA  
M = MU

N = NU  
Ξ = XI  
O = OMICRON

Π = PI  
P = RHO  
Σ = SIGMA

T = TAU  
Υ = UPSILON  
Φ = PHI

X = CHI  
Ψ = PSI  
Ω = OMEGA

**AL ALPHA** Auburn University  
**BETA** University of Alabama  
**GAMMA** Univ. of Ala. at Birmingham  
**DELTA** Univ. of Ala. in Huntsville  
**EPSILON** Univ. of South Alabama  
**AK ALPHA** Univ. of Alaska Fairbanks  
**AZ ALPHA** University of Arizona  
**BETA** Arizona State University  
**GAMMA** Northern Arizona University  
**DELTA** Embry-Riddle Univ., Prescott  
**AR ALPHA** University of Arkansas  
**BETA** Univ. of Ark. at Little Rock  
**CA ALPHA** UC Berkeley  
**BETA** Calif. Institute of Technology  
**GAMMA** Stanford University  
**DELTA** University of Southern Calif.  
**EPSILON** UC Los Angeles  
**ZETA** Santa Clara University  
**ETA** San Jose State University  
**THETA** Calif. State Univ., Long Beach  
**IOTA** Calif. State Univ., Los Angeles  
**KAPPA** Calif. State Univ., Northridge  
**LAMBDA** UC Davis  
**MU** Calif. Poly St. Univ., San Luis Obispo  
**NU** Calif. State Poly Univ., Pomona  
**XI** San Diego State University  
**OMICRON** Loyola Marymount Univ.  
**PI** Northrop University (inactive)  
**RHO** California State Univ., Fresno  
**SIGMA** UC Santa Barbara  
**TAU** University of California, Irvine  
**UPSILON** Calif. St. Univ., Sacramento  
**PHI** University of the Pacific  
**CHI** California State Univ., Fullerton  
**PSI** UC San Diego  
**OMEGA** Harvey Mudd College  
**ALPHA ALPHA** Calif. St. Univ., Chico  
**ALPHA BETA** UC Riverside  
**ALPHA GAMMA** San Francisco St. Univ.  
**ALPHA DELTA** UC Santa Cruz  
**ALPHA EPSILON** Univ. of San Diego  
**CO ALPHA** Colorado School of Mines  
**BETA** Univ. of Colorado at Boulder  
**GAMMA** University of Denver  
**DELTA** Colorado State University  
**EPSILON** Univ. of Colorado at Denver  
**ZETA** U.S. Air Force Academy  
**CT ALPHA** Yale University  
**BETA** University of Connecticut  
**GAMMA** University of Hartford  
**DE ALPHA** University of Delaware  
**DC ALPHA** Howard University  
**BETA** Catholic Univ. of America  
**GAMMA** George Washington Univ.  
**FL ALPHA** University of Florida  
**BETA** University of Miami  
**GAMMA** University of South Florida  
**DELTA** University of Central Florida  
**EPSILON** Florida Atlantic University  
**ZETA** Florida Institute of Technology  
**ETA** FL A&M Univ.-FL State Univ.  
**THETA** Florida International Univ.  
**IOTA** Embry-Riddle Aero. Univ.  
**GA ALPHA** Georgia Institute of Technology  
**BETA** Mercer University  
**ID ALPHA** University of Idaho  
**BETA** Idaho State University  
**GAMMA** Boise State University  
**DELTA** Brigham Young Univ.-Idaho  
**IL ALPHA** Univ. of IL at Urbana-Champaign  
**BETA** Illinois Institute of Technology  
**GAMMA** Northwestern University  
**DELTA** Bradley University  
**EPSILON** S. Illinois Univ. at Carbondale  
**ZETA** University of Illinois at Chicago  
**IN ALPHA** Purdue University  
**BETA** Rose-Hulman Inst. of Technology  
**GAMMA** University of Notre Dame  
**DELTA** Valparaiso University  
**EPSILON** Trine University  
**ZETA** Indiana Univ.-Purdue Univ. Indpls.  
**IA ALPHA** Iowa State University  
**BETA** University of Iowa  
**KS ALPHA** University of Kansas  
**BETA** Wichita State University  
**GAMMA** Kansas State University

**KY ALPHA** University of Kentucky  
**BETA** University of Louisville  
**GAMMA** Western Kentucky University  
**LA ALPHA** Louisiana State University  
**BETA** Tulane University  
**GAMMA** Louisiana Tech. University  
**DELTA** Univ. of Louisiana at Lafayette  
**EPSILON** University of New Orleans  
**ME ALPHA** University of Maine  
**MD ALPHA** Johns Hopkins Univ.  
**BETA** University of Maryland  
**GAMMA** U.S. Naval Academy  
**DELTA** Univ. of Maryland Baltimore Co.  
**EPSILON** Morgan State University  
**MA ALPHA** Worcester Polytechnic Inst.  
**BETA** Massachusetts Inst. of Tech.  
**GAMMA** Harvard University (inactive)  
**DELTA** Tufts University  
**EPSILON** Northeastern University  
**ZETA** University of Mass. at Amherst  
**ETA** Boston University  
**THETA** Univ. of Massachusetts Lowell  
**IOTA** Western New England Univ.  
**MI ALPHA** Michigan State University  
**BETA** Michigan Technological Univ.  
**GAMMA** University of Michigan  
**DELTA** University of Detroit Mercy  
**EPSILON** Wayne State University  
**ZETA** Kettering University  
**ETA** Lawrence Technological Univ.  
**THETA** Oakland University  
**IOTA** Univ. of Michigan-Dearborn  
**KAPPA** Western Michigan Univ.  
**LAMBDA** Grand Valley State Univ.  
**MN ALPHA** Univ. of Minnesota-Twin Cities  
**BETA** Univ. of Minnesota, Duluth  
**MS ALPHA** Mississippi State University  
**BETA** University of Mississippi  
**MO ALPHA** Univ. of Missouri-Columbia  
**BETA** Missouri Univ. of Science & Tech.  
**GAMMA** Washington University  
**DELTA** Univ. of Missouri-Kansas City  
**EPSILON** Saint Louis University  
**MT ALPHA** Montana State University  
**BETA** Montana Tech. of the Univ. of MT  
**NE ALPHA** Univ. of Nebraska-Lincoln  
**NV ALPHA** University of Nevada, Reno  
**BETA** Univ. of Nevada, Las Vegas  
**NH ALPHA** Univ. of New Hampshire  
**BETA** Dartmouth College  
**NJ ALPHA** Stevens Institute of Technology  
**BETA** Rutgers University  
**GAMMA** New Jersey Inst. of Tech.  
**DELTA** Princeton University  
**EPSILON** Rowan University  
**ZETA** The College of New Jersey  
**NM ALPHA** New Mexico State University  
**BETA** University of New Mexico  
**GAMMA** NM Inst. of Mining & Tech.  
**NY ALPHA** Columbia University  
**BETA** Syracuse University  
**GAMMA** Rensselaer Polytechnic Inst.  
**DELTA** Cornell University  
**EPSILON** New York Univ. (inactive)  
**ZETA** Brooklyn Polytechnic (inactive)  
**ETA** City College of CUNY  
**THETA** Clarkson University  
**IOTA** Cooper Union School of Eng'g.  
**KAPPA** University of Rochester  
**LAMBDA** Pratt Institute (inactive)  
**MU** Union College  
**NU** SUNY at Buffalo  
**XI** Manhattan College  
**OMICRON** SUNY at Stony Brook  
**PI** Rochester Institute of Tech.  
**RHO** NYU Tandon School of Eng'g.  
**SIGMA** Alfred University  
**TAU** Binghamton University  
**UPSILON** U.S. Military Academy  
**NC ALPHA** North Carolina State Univ.  
**BETA** Univ. of North Carolina (inactive)  
**GAMMA** Duke University  
**DELTA** Univ. of NC at Charlotte  
**EPSILON** NC A&T State University  
**ZETA** East Carolina University

**ND ALPHA** North Dakota State University  
**BETA** University of North Dakota  
**OH ALPHA** Case Western Reserve Univ.  
**BETA** University of Cincinnati  
**GAMMA** Ohio State University  
**DELTA** Ohio University  
**EPSILON** Cleveland State Univ.  
**ZETA** University of Toledo  
**ETA** Air Force Institute of Tech.  
**THETA** University of Dayton  
**IOTA** Ohio Northern University  
**KAPPA** University of Akron  
**LAMBDA** Youngstown State Univ.  
**MU** Wright State University  
**NU** Cedarville University  
**XI** Miami University  
**OK ALPHA** University of Oklahoma  
**BETA** University of Tulsa  
**GAMMA** Oklahoma State University  
**OR ALPHA** Oregon State University  
**BETA** Portland State University  
**GAMMA** University of Portland  
**DELTA** Oregon Institute of Tech.  
**PA ALPHA** Lehigh University  
**BETA** Pennsylvania State University  
**GAMMA** Carnegie Mellon University  
**DELTA** University of Pennsylvania  
**EPSILON** Lafayette College  
**ZETA** Drexel University  
**ETA** Bucknell University  
**THETA** Villanova University  
**IOTA** Widener University  
**KAPPA** Swarthmore College  
**LAMBDA** University of Pittsburgh  
**MU** Penn State Erie, Behrend College  
**PR ALPHA** University of Puerto Rico  
**RI ALPHA** Brown University  
**BETA** University of Rhode Island  
**SC ALPHA** Clemson University  
**BETA** University of South Carolina  
**GAMMA** The Citadel  
**SD ALPHA** S. Dakota Sch. of Mines & Tech.  
**BETA** South Dakota State University  
**TN ALPHA** University of Tennessee  
**BETA** Vanderbilt University  
**GAMMA** Tennessee Tech. University  
**DELTA** Christian Brothers Univ.  
**EPSILON** University of Memphis  
**ZETA** Univ. of Tenn. at Chattanooga  
**TX ALPHA** University of Texas at Austin  
**BETA** Texas Tech. University  
**GAMMA** Rice University  
**DELTA** Texas A&M University  
**EPSILON** University of Houston  
**ZETA** Lamar University  
**ETA** Univ. of Texas at Arlington  
**THETA** Univ. of Texas at El Paso  
**IOTA** Southern Methodist University  
**KAPPA** Prairie View A&M University  
**LAMBDA** Texas A&M Univ.-Kingsville  
**MU** Univ. of Texas at San Antonio  
**NU** Univ. of Texas Rio Grande Valley  
**XI** University of Texas at Dallas  
**UT ALPHA** University of Utah  
**BETA** Brigham Young University  
**GAMMA** Utah State University  
**VT ALPHA** University of Vermont  
**BETA** Norwich University  
**VA ALPHA** University of Virginia  
**BETA** Virginia Poly. Inst. & State Univ.  
**GAMMA** Old Dominion University  
**DELTA** Virginia Military Institute  
**EPSILON** Virginia Commonwealth Univ.  
**WA ALPHA** University of Washington  
**BETA** Washington State University  
**GAMMA** Seattle University  
**DELTA** Gonzaga University  
**WV ALPHA** West Virginia University  
**BETA** West Virginia Univ. Inst. of Tech.  
**WI ALPHA** Univ. of Wisconsin-Madison  
**BETA** Marquette University  
**GAMMA** Univ. of Wisconsin-Milwaukee  
**DELTA** Milwaukee School of Eng'g.  
**EPSILON** Univ. of Wisconsin-Platteville  
**WY ALPHA** University of Wyoming



# The Bent

FALL 2021

FALL 2021 | VOLUME CXII | No.4

## AWARDS:

- 10 Laureates
- 12 McDonald Mentor
- 13 Outstanding Advisor
- 14 Distinguished Alumni
- 18 TBPI Names 261 Scholars

## FEATURES:

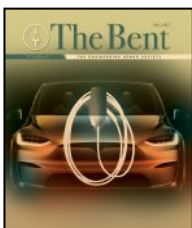
- 5 Powering Our Electric Vehicles
- 26 Zombie Patents

## REPORTS:

- 3 Executive Council Candidates
- 52 Petitions

## DEPARTMENTS:

- 2 Council's Corner
- 3 Letters
- 4 Who's Who
- 17 Caption Contest
- 24 Brain Ticklers
- 30 In the Colleges
- 32 Alumni Giving
- 40 Authors
- 42 Chapter Eternal
- 50 Council Minutes
- 54 Alumni Notes



**COVER:** An electric vehicle and home charger; the grid challenges that lie ahead.

**Artist:** Dali Polivka

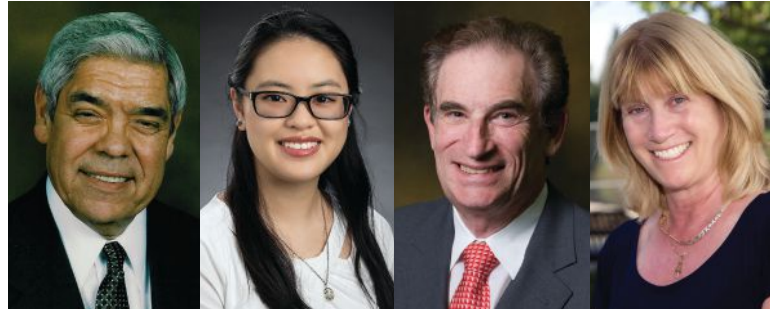
**Editor:** Dylan S. Lane

**Managing Editor:** Patricia B. McDaniel

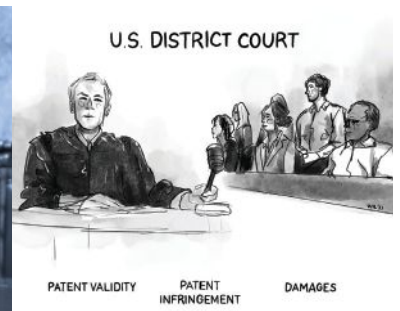
**Editorial Board:** Lyle D. Feisel, Ph.D., P.E. (ret.), *IAA '61*, James D. Froula, P.E. (ret.), *TNA '67*, Alison L. Hu, *CAI '96*, and John W. Prados, Ph.D., P.E., *TNA '54*.

Tau Beta Pi was founded at Lehigh University, South Bethlehem, PA, June 15, 1885, by Edward H. Williams Jr., A.B., A.C., E.M., Sc.D., LL.D. (1849-1933). Key and name registered in U.S. Patent and Trademark Office.

Member, *American Society for Engineering Education*; co-founder *Association of College Honor Societies*; and Affiliate, *American Association for the Advancement of Science*.



**10** Congratulations to the Association Award Winners for 2021!



**26** Guest author David Newman explains the dangers of zombie patents.

## Where is the Executive Director's Report?

We typically publish the Executive Director's Report in each fall issue. You may have noticed there is no report in this issue. As the Headquarters team and representatives of our auditing firm Crowe were concluding work on the audit for the fiscal year ending July 31, 2020, we uncovered a situation regarding the Association's net assets. Several months were spent reviewing our existing funds including the finances and related correspondence and legal documents. After concluding this review, TBPI and Crowe have determined that several of our funds and the assets within them were not classified correctly. The good news is that Tau Beta Pi has been overly restrictive with its assets. However, because a number of funds need to be reclassified, the normal audit and review process is taking much longer, and financial statements will not be issued until later this year. Since the financial statements are a major portion of the Executive Director's Report, we are waiting to publish the report until the audit concludes this fall. We anticipate that a full report will appear in the winter issue.

VISIT [www.tbp.org](http://www.tbp.org)

**The Bent of Tau Beta Pi**® (ISSN 0005-884X) is published quarterly for \$10 per year by The Tau Beta Pi Association, Inc., Room 508, Dougherty Engineering, The University of Tennessee, Knoxville, TN 37996-2215. Life subscriptions are: \$95-Print, \$45-Digital. Printed in U.S.A. Periodicals postage paid at Knoxville, TN, and at additional mailing offices.

**SUBSCRIBERS AND POSTMASTER:** Send address change, request for online subscription, and other correspondence to [tbp@tbp.org](mailto:tbp@tbp.org) or to *The Bent of Tau Beta Pi*, P.O. Box 2697, Knoxville, TN 37901-2697.

**Volume 112, Number 4 | Circulation: 86,210 | Initiated Members: 617,909**

©2021 by The Tau Beta Pi Association, Incorporated. *The Bent* is the official publication of The Tau Beta Pi Association, Inc., The Engineering Honor Society. Title registered U.S. Patent and Trademark Office. All rights reserved. Ideas expressed in articles with by-lines in this magazine and in paid advertisements do not reflect the policy or opinions of the Association.



# COUNCIL'S CORNER

Joan M. Sciacca, CA M '87, TBI 2021 Councillor

## BECOME AN ASSOCIATION VOLUNTEER

Seeking leaders with business experience to help run the organization.

I was initiated into the California Mu Chapter at California Polytechnic State University, San Luis Obispo. I was drawn to accept membership by the inclusive nature of Tau Beta Pi (the only honor society for all engineering disciplines), its history, and its vision to provide practical leadership, professional and interpersonal skills training to engineering students (the Engineering Futures Program). Upon starting my career, I quickly realized these leadership and interpersonal skills were exactly the tools engineers need to be successful — yet were not getting exposure to as part of their engineering curricula. Tau Beta Pi played a pivotal role in my development and future career growth because of the Engineering Futures (EF) Program.

For the first ten years of my career, I volunteered as an EF Facilitator. Then, life got busy and I stepped away from TBI for the next 20 years. I spent 30 years in a Fortune 100 company having had a very diverse career with increasing leadership roles in areas such as engineering project, business, program, product line, business continuity, and talent management, field support & aircraft engine test, joint ventures, supply chain, operations, divestiture transition, operational and process excellence, six sigma and lean problem solving, global strategic sourcing, customer and product support, and global internal consulting. Throughout my career, I've embraced change and am an advocate for the change that comes with growth.

My career strategy was to retire after 30 years, but do something different. I reached out to Tau Beta Pi as a volunteer. Frankly, I had been too removed from the daily operations to think of volunteering for the Executive Council (EC). It wasn't until one of my long-time TBI friends called and suggested I become a Councillor that I agreed to become a candidate for election.

I believe my diverse background and business leadership are a strong complement to the EC. Tau Beta Pi, as the world's largest engineering membership organization, is a multi-million dollar business and should be managed as such. Because of my corporate leadership experience and since I'm not a long-time volunteer, I bring a fresh perspective and challenge the TBI status quo. It's sometimes difficult to see opportunities when you're embedded in a situation.

The Executive Council is one of Tau Beta Pi's two governing bodies, the other being the annual Convention. The Council serves as the board of directors of a non-profit. It is an executive-level business management body that, to be effective, needs alumni members who have strong leadership experience, vision, critical and strategic thinking skills, and a business management background to step forward and volunteer to run as candidates for the Council.

If you do not have the background to serve on the EC, the beauty of Tau Beta Pi is that the Association has a **multitude** of opportunities for you to get involved and give of your time, talent, passions, and energy in one of TBI's

many volunteer positions. If you see a need that hasn't been filled, petition for a committee or task force and lead it to close the gap.

However, for those of you with a strong business background, please consider volunteering to serve on the Executive Council. Since I hadn't thought of it for myself, I'm asking you to give it some thought.

Nominations for this year are closed; (see pages 3 and 38 for this year's candidates) however, three positions open each year and you should consider running as one of next year's candidates. Nominations are due July 1 for an October election that takes place during the annual Convention. Should you be interested in becoming a future Councillor, please contact anyone on the Council, TBI Headquarters, or a student or alumni chapter to help with the nomination process.

I would be more than happy to chat with anyone interested in becoming an Executive Council member. Please contact me at [JSciacca@tbp.org](mailto:JSciacca@tbp.org). I look forward to speaking with you!

---

**JOAN SCIACCA** retired from Honeywell International where she held leadership positions in business and engineering. She served as CA Mu Chapter president and earned a B.S. degree in aerospace engineering from Cal Poly Obispo. She is the founder of Finestra Consulting LLC, where she continues her passion for process excellence and coaching/mentoring early career professionals in leadership. She joined the TBI Executive Council in 2021.



# Executive Council CANDIDATES

The Executive Council is our board of directors consisting of nine members who are alumni and serve a 3-year term. The Executive Council names its own officers: *Chair*, who is also President of the Association; *Vice Chair*, who is also Vice President; *Secretary*, *Treasurer*, and four *Councillors*.

The 2015 Convention approved amendments, later ratified by the chapters, which restructured the Executive Council. In this new structure, three members of the Council will be elected by the Convention each year. The terms of President George J. Morales, Secretary Rachel K. Alexander, and Councillor Russ Pierce expire on December 31, with Russ Pierce seeking another term. In response to the call for candidates, six individuals were nominated and nominations are closed. **THE NOMINEES FOR THE 2022-24 TERM INCLUDE:**



**CHETAN G. DATE** Ph.D., P.E.  
ARIZONA BETA '84

*Nominated by the Phoenix Alumni Chapter.* Chetan holds a Ph.D. in structural engineering, an executive MBA from Arizona State Univ., and B.Tech. from IIT Kharagpur. He is a certified Six-Sigma Black Belt and registered professional engineer in the state of Arizona.

He is a retired aerospace executive with expertise in quality assurance, regulatory compliance, and teaching. He has extensive global experience and has managed multi-location organizations. During his 32-year career at Honeywell Aerospace, Chetan held leadership positions with increasing responsibilities in engineering, marketing & product management. Currently, he is adjunct faculty at Embry-Riddle Aeronautical University, Prescott. Chetan participates in and led various technical committees sponsored by the FAA and industry groups like SAE International. He has published technical papers and led global teams to write international standards. He was chairman of SAE PRI-Nadcap management council and on the board of directors of the non-profit Southwest Alliance for Excellence, and is also a TBIT Engineering Futures Facilitator.

He enjoys transforming challenging situations by focusing on people, processes, and executing sustainable changes. He lives in Tempe, AZ, with his wife Shobhna, AZ B '82.



**RONALD M. HICKLING**  
CALIFORNIA EPSILON '80

*Nominated by the California Epsilon Chapter.* Ron has a B.S. in electrical engineering from the University of California, Los Angeles.

As a senior systems engineer at Interconnect Systems, a Molex, LLC subsidiary, he works in the development of hardware for instrumentation, RF bandwidth ADCs, and DACs coupled with FPGA processing.

Ron has served as TBIT's Convention Chair 28 times since the late 1980s and as Parliamentarian to the Convention prior to that. He has been a District 15 Director, which then included all of CA and NV, an Engineering Futures Facilitator (from its inception through 1999), and Director of Engineering Futures (1995-99). More recently, he has been a California Epsilon Chapter Advisor.

He began his career at Hughes Aircraft Company as a Hughes Masters Fellow. In 1992, he co-founded startup TechnoConcepts, Inc., a company engaged in the development of software defined radio chips and systems, serving first as president, then CTO and member of the board of directors. Ron is a senior member of IEEE, a licensed radio amateur, lives with his family in Newbury Park, CA, enjoys the Santa Monica Mountains, and playing music in his spare time.

↑ Continues on page 38 ↑

## YOUR LETTERS

Send letters to [dylan@tbp.org](mailto:dylan@tbp.org). Letters may be edited for length and clarity; not all can be published.

### Importance of Discussing Societal Issues

In his Summer 2021 letter, Phil Sexton seems to long for a world that does not exist – one in which there is a bright-line distinction between engineering considerations based solely on physical laws on the one hand and political and societal considerations on the other. He worries that “political solutions to non-physical problems inevitably cause harm to some individuals and favoritism to others.” Setting aside the question of whether there are non-political solutions to non-physical problems, what about the harm caused by ignoring political and societal considerations? Consider his objection to discussions of race and gender. Arguments such as this no doubt contribute to the fact that the engineering profession is well over 80 percent male and more than two-thirds white. This is surely an issue that should be discussed by engineering and professional societies despite the fact that there are no natural laws that would account for this state of affairs.

And his distinction between engineering issues and political issues is overly simplistic. Why, for example, should agreeing to build a coal-fired power plant that would exacerbate global warming be seen as an apolitical professional engagement while objecting to the building of such a plant would be considered a political act? If scientists and engineers cede the discussion of societal issues to those who do not understand technology and do not practice evidence-based decision making, society will be the poorer for it. We need more of this type of discussion, not less.

**Robert J. Leipold, IN B '80**

**P.S.** — The figures on the composition of the engineering profession are 2019 data from the *Women, Minorities, and Persons with Disabilities in Science and Engineering* report based on a survey by the National Center for Science and Engineering Statistics of the National Science Foundation. Gender makeup can be found in tables 9-5 and racial makeup in tables 9-6.

# WHO'S WHO IN TAU BETA PI

Recognizing Tau Beta Pi accomplishments

## Paul E. DesJardin Ph.D.

*New York Nu '93*

has been elected Fellow of the American Society of Mechanical Engineers (ASME), "in recognition of his exceptional achievements and contributions to the engineering profession." He is an engineering professor at University at Buffalo, secured DOE funding to create the Center for Hybrid Rocket Exascale Simulation Technology, and serves as its Director.



## David M. Kotick

*Florida Delta '81*

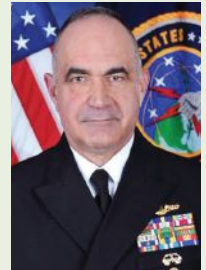
was selected as a 2021 inductee into the Florida Inventors Hall of Fame. He is a leading subject-matter expert in the field of virtual communications for the Department of Defense. He is being recognized for seminal innovations integrating digital communications across live/virtual training environments that have advanced simulated training for the U.S. military, culminating with the Digital Radio Management System.



## Admiral Chas A. Richard

*Alabama Beta '82*

has assumed duties as Commander, U.S. Strategic Command at Offutt AFB, NE, where he is responsible for 1 of 11 Unified Commands under the Department of Defense, and was previously a Commander, Submarine Forces. He earned degrees in electrical engineering from the University of Alabama and master's degrees from the Catholic University of America and the Naval War College.



## Ed P. Gorzkowski III Ph.D.

*Pennsylvania Alpha '99*

received the American Ceramic Society Richard M. Fulrath Award for excellence in research and development of ceramic sciences and materials. He is the U.S. Naval Research Lab's Multifunctional Materials Branch Head. His research areas include piezoelectric materials for sensor and actuator applications and being cited for promoting the international electroceramics community.



## Beverly T. Kuhn Ph.D., P.E.

*Texas Delta '88*

was elected as the 2022 International President of the Institute of Transportation Engineers. She is a division head and Regents Fellow at Texas A&M Transportation Institute (TTI). During her 30+ years at TTI, she has developed an extensive experience in the conduct and delivery of cutting-edge research for the transportation community. Her three degrees are in civil engineering.



## Daniel E. Rivera Ph.D.

*New York Kappa '82*

has been named a 2021 Society of Behavioral Medicine Fellow. He is a professor of chemical engineering at Arizona State University. His career/research focuses on applying control systems engineering—looking at change over time and managing variability for optimized outcomes—to many fields, including behavioral medicine. His 2011 paper has been cited more than 1,000 times.



## Joseph J. Helble Ph.D.

*Pennsylvania Alpha '82*

was selected as the 15<sup>th</sup> president of Lehigh University, starting August 16. He is currently provost at Dartmouth College (since 2018) and previously served as dean of engineering (2005-18). Author of 100+ publications in the areas of air pollution, aerosols, nanoscale ceramics, and air quality, he holds three U.S. patents related to nanoscale powder production.



## Laura J. McGill Ph.D.

*Washington Alpha '85*

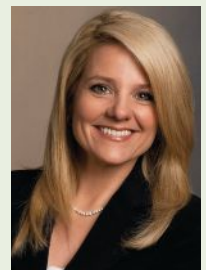
was elected as the next president of the American Institute of Aeronautics and Astronautics (AIAA). She is deputy labs director and chief technology officer for nuclear deterrence at Sandia National Laboratories. She will spend a year as president-elect before serving a two-year term, beginning May 2022, as president. Her B.S. in aero eng'g is from the University of Washington.



## Gwynne E. Shotwell

*Illinois Gamma '86*

was named a 2021 Honorary Fellow by the American Institute of Aeronautics and Astronautics (AIAA). President and COO of SpaceX, she manages the operations of the commercial space exploration company. She joined SpaceX in 2002 as its 11<sup>th</sup> employee. Her B.S. degree is in mechanical engineering from Northwestern University.





## Powering Our Electric Vehicle Future

BY ALAN S. BROWN

Electrical vehicles (EVs) could surpass half of all new car sales by 2026. The grid has more than enough power to keep them charged — if it can solve its distribution problem.

There are many reasons not to buy an electric vehicle. EVs are often more expensive than internal combustion engine vehicle (ICEV) equivalents. They have short—often, much shorter—driving ranges and may take 12 or more hours to recharge fully. Some people may have to rewire their homes to charge them, while others who live in apartments and condominiums may have no access to chargers. No wonder global consultant Accenture found that two out of every five conventional car owners said they would never consider an electric vehicle.

Yet, the other 60 percent of buyers cannot seem to get enough of them. Despite the COVID-19 pandemic and an economic decline in 2020, EV sales rose 40 percent in 2020 to 3.24 million units, or 4.2 percent of the global light vehicle market. In Germany, EVs accounted for more than one of every five cars sold in the fourth quarter of 2020.

Right now, the market for battery-based EVs consists of two types of vehicles: plug-in hybrid electric vehicles (PHEVs), where a small internal combustion engine complements a limited-range battery (like the Toyota Prius); and battery electric vehicles (BEVs), which only use battery power (like the Tesla) and now dominate the market.

That is just the start. Boston Consulting Group (BCG) estimates that by 2030, the world's automakers will offer more than 400 EV models. By 2026, they will account for more than half the light vehicle sales. This is four years earlier than BCG had projected just twelve months before.

“The shift to electric vehicles is happening quickly, though it has been 10 years in the making,” said Dawn Neville, who manages electric vehicle programs for New Jersey and New York's Public Service Electric & Gas (PSE&G). “It's not nearly as fast as cellphone adaptation, but it could follow similar trajectory.”

It will certainly reshape the grid as we know it. On an annual basis, recharging an average EV consumes about as much power as the average American household. No wonder that a Department of Energy study found that EVs would play a key role in boosting demand for electricity by 38 percent by 2050. That may sound like a hefty increase, but utilities are used to planning for capacity increases decades into the future.

On the other hand, adding a new house worth of electrical demand with every new EV is likely to have a big impact on electrical distribution. EVs are unevenly distributed and concentrate in upscale communities. What will happen when those EV owners return from work and all plug in their EVs at the same time to recharge?

### PLUGGING IN

Several factors drive the rapid growth of electric vehicles. Climate change is the most important. Most nations and

virtually all climate scientists recognize that carbon dioxide emissions are leading to warmer and more extreme weather. Vehicles account for 17 percent of the world's energy-related greenhouse emissions, according to the Intergovernmental Panel on Climate Change.

EVs promise to make a big dent in those emissions. They produce fewer emissions and greenhouse gases even when charged with electricity from coal-burning power plants, according to an analysis by the Department of Energy's Alternative Fuels Center (AFC).

When AFC looked at well-to-wheel emissions (emissions from vehicles as well as fuel production, distribution, and use), it found that U.S. BEVs had one-third and PHEVs one-half the emissions of ICEVs.

Nations have taken note and acted. The European Union set a net-zero automotive emissions target for 2050 as part of the European Green Deal. Paris will ban ICEVs by 2024 and Rome & Milan by 2030. More than 15 nations and California plan to phase out ICEVs by 2035. President Biden recently announced plans to slash emissions levels and target 50 percent EV sales by 2030.

In almost every case, incentives are underwriting the cost of buying EVs. The United States, for example, gives EV buyers a \$7,500 tax credit. Many states

also provide incentives. New Jersey, for example, up to \$5,000 for consumers and up to \$9,000 for fleet owners.

The incentives are important because batteries, the most expensive part of an EV, drive costs higher than ICEVs. This, however, is changing rapidly. The Electric Power Research Institute (EPRI) and BCG find that EV batteries have fallen from \$700/kWh in 2009 to \$540/kWh in 2014 to under \$150/kWh today. Thanks to continued improvement in cell chemistry and assembly procedures and greater production scale, EPRI predicts prices to drop to \$80-105/kWh by 2025 and \$70-90/kWh by 2030.

The electric motors used in EVs are mechanically simpler and less expensive to make and assemble than internal combustion engines. Add to that greater efficiency—EVs have only 20 percent engine losses compared with 70 percent for ICEVs, according to EPA—and EVs could prove a bargain.

In fact, EPRI expects the five-year total cost of ownership for BEVs to drop below those of ICEVs by 2028, according to EPRI. BCG believes it could happen globally as soon as 2022 or 2023, depending on the region and vehicle size.

Falling costs and government regulations are certainly spurring EV growth.

Yet, EVs are popular for another reason—they are cool. In the beginning, EVs were seen as underpowered eco-conscious vehicles that no one would enjoy driving. Elon Musk changed that with the Tesla, a car that could blow by all but the most exotic supercars on a highway and that was filled with high-tech gadgets. Tesla widened the appeal of EVs to a much broader audience, even as competition begins to erode EV prices.

## BUILDING OUT

EVs are certainly on the way, but it will take a new type of infrastructure to fuel them. Today, nearly everyone fuels up at a gas station. Not EVs. The Department of Energy estimates that 80 to 90 percent of all charging will take place at home.

Today, many EVs come with Level 1 chargers. They work well for PHEVs with limited battery range, adding just 3-5 miles of driving range per hour of charge. That works for a Toyota Rav4 Prime with 42 miles of battery range. For BEV like the Volkswagen ID.4 with 230 miles of range, the home alternative is a Level 2 charger. It generates from 15 to 30-plus miles of driving range per hour, but may cost \$1,000 to more than \$2,000 with installation.

A Level 1 charger plugs into a standard 120V outlet. Not the Level 2. "Typically, most people want a Level 2 charger, but

Left: EVs top off at a public charging station. Below: A home charger takes hours to charge an EV, fast chargers can deliver up to 5-6 miles of range per minute.



it requires a 240V outlet,” PSE&G’s Neville said. “We estimate that about 10 percent of our customers will need to upgrade their service before they can install one.”

Public chargers operate differently. While home chargers range from 7 kW to 12 kW, service station chargers run 50 kW to 375 kW. The most powerful of them deliver 5 to 6 miles of range per minute. That would give a typical battery an 80 percent charge in 15 to 30 minutes, Neville said.

Today, entrepreneurs have built a network of 50,000 fast Level 3 and Level 4 chargers. President Biden wants to build 500,000 new public chargers by 2030. It sounds like a lot, but pales in comparison to the nation’s 135,000 service stations and 1.4 million pumps. Still, with most charging taking place at home, it might be enough.

PricewaterhouseCooper (PwC), a large consulting firm, looked at the economics of fast-charging stations. It found Level 4 chargers cost twice as much as Level 3 units. To achieve the same profitability as a Level 3 station, a Level 4 outlet must charge a 10 c/kWh premium. That works out to \$5 premium for 50 kWh charge equal to 100 miles of range that saves 15 to 20 minutes. PwC estimates some consumers would pay up to four times more for Level 4 roadway charging than they would at home.

Today’s service stations are located on major roadways, but public chargers may be located near attractions that give motorists something to do while they wait.



Either way, charging will leave motorists with time to kill. This might alter where companies site chargers. Volta Charging, for example, partners with retailers, shopping malls, and grocery stores, where motorists have something to do while their vehicles recharge. Volta offers the first 30 minutes of charging free, but offsets its costs from local advertising shown on the charger.

McKinsey & Co. expects fleets to embrace EVs enthusiastically. While EVs may cost more up front, their high efficiency will quickly recoup any additional expenses. McKinsey estimates that the total cost of ownership for fleet EVs will be 15 to 25 percent less than ICE vehicles by 2030. Fleet owners could save further money by installing solar or wind power to power their rechargers.

### RIDING THE CURVE

Despite the growth of EVs, most analysts are not worried about capacity. Today, PHEVs and BEVs account for about 1 million of the United States’ 250 million vehicles. Even if more than half of light vehicle sales are EVs by 2026, there would only be 40 to 50 million EVs on the road by 2030.

It sounds like a lot, but not compared with America’s electricity output. A 2019 Department of Energy-funded study estimated that if the number of

EVs on the road in 2030 rose to 40 million, they would require 27 terawatt-hours of additional output. That is not even one percent of the 4,178 TWh of electricity the United States consumed in 2018.

This does not mean utilities have nothing to worry about. The issue facing them is distribution.

“The problem is not so much the amount of electricity consumed but the instantaneous demand for electricity when everyone charges their car when they get home from work,” Anshuman Sahoo, a principle at BCG, said. “It’s less about kilowatt-hours than making sure the grid is equipped to transmit that power when you need it.”

Sahoo likens buying an EV to building a new home. If half the families in a 50-home development buy an EV for local commutes, it will add the equivalent of 25 new homes to the electrical distribution circuit that serves them.

Neville agreed: “EV purchases tend to happen neighborhood by neighborhood. If you buy an EV, maybe your neighbors do it and then their neighbors do as well.”

This is already happening in well-to-do neighborhoods and falling EV prices will spur the transition. This leaves utilities like PSE&G trying to manage the reliability of its distribution network. “If you and your neighbors all adopt EVs, we could have a voltage problem that continues back to the distribution center,” Neville said.

Neighborhood by neighborhood growth is not only uneven, but tricky to estimate in the near term. “We need to understand what the adoption rate will be,” Neville said. “We’ve done that based on state goals and some data from around the country, but those are all assumptions. The reality may be different, and we will have to adapt to it.”

Longer term, Neville said, PSE&G and other utilities will have to build out those last-mile upgrades. It will have to decide where and when to build more substations and calculate where to place them to deliver instantaneous power when everyone plugs in at night.

Fleet owners are likely to embrace EVs because their high efficiency will help them quickly recoup their initial investment.



## PEAKS

In the meantime, increased evening demand will strain the grid's distribution system—unless utilities find a way to manage it. Fortunately, they have several near-term and long-term options available, Sahoo said.

Rather than rushing to boost distribution capacity, most utilities would rather manage demand, Sahoo explains. One way to encourage EV charging during off-peak hours is to lower rates during those periods and use smart monitors to help motorists charge economically.

How would that work? Most owners plug in their EV when they return from work. It may remain plugged in for 12 hours or more. An app might show that charging between 6 - 9 p.m. is expensive, while between 9 p.m. and 8 a.m., when retail businesses close and cooling temperatures reduce demand for air conditioning, is less costly. Most people would choose to recharge after midnight to save money, while others might pay more to top off their battery if they wanted to go out that night.

Utilities could also manage recharging automatically, Sahoo said. They have already begun to do this for thermostats and air conditioners. They would monitor grid conditions and optimize recharging to balance the load more evenly among and within different distribution substations.

Of course, this works best if EV owners use Level 2 chargers rather than painfully slow Level 1 units. With a Level 2 charger, many motorists would need only a few hours of charging to top off their batteries. This will give utilities more room to match capacity and demand, and it explains why many utilities have begun to offer rebates on Level 2 chargers.

Utilities must also contend with the highly volatile and spiky load profiles of public fast-charging stations, according to a 2018 McKinsey report. When the consultants simulated a fast-charging station, they found it could quickly exceed the peak-load capacity of a typical feeder-circuit transformer.

Fleets also pose a challenge. If a fleet of 200 electric public transit buses recharged slowly overnight on 80 kW chargers, they would require 16 MW of grid capacity, according to BCG. But if only 40 of those buses needed to recharge quickly during the day and spent 10 to 15 minutes on 450 kW to 500 kW chargers, they would need 18 MW of capacity. That is equivalent to 3,000 homes at their peak capacity.

The solution to some of these issues might come in the form of storage batteries, which are increasingly affordable. They would let public charging stations increase profit margins by using stored off-peak power to recharge EVs during more expensive peak power periods.

While high-speed chargers and electrical storage will likely prove expensive to implement, Sahoo believes entrepreneurs will find a way to overcome these barriers. He points to Volta's advertising driven chargers as an example. "A lot of solutions seem expensive now, but over the next few years, we'll see many innovative business models that make solutions to grid challenge feasible," he said.

## BARRIERS

Despite industry optimism, high investment costs—and who will pay for them—is only one of several barriers that utilities will face as EVs roll into the market.

"Investment costs, and therefore the pressure on rates, will be magnified as EV adoption ramps up," Sahoo said. "That's because investment costs increase exponentially as EV penetration increases, given the need for more expensive equipment and a larger number of new assets."

In 2019, BCG estimated that the typical utility would have to invest between \$1,700 and \$5,800 in grid upgrades per EV through 2030, depending on how fast EVs move into the market and how well utilities convince EV owners to charge their vehicles during off-peak hours. This works out to rate increases of up to 1.4 cents/kWh on a national average utility rate of 11 cents/kWh, or 13 percent. Other studies by various firms see equivalent increases.

Utilities are regulated by the states. If state utility boards approve those investments, which utilities must make before demand for EVs begins to impact service, the bill will be passed through to utility customers. Many of them do not own electric vehicles.

This is why encouraging users to recharge when demand is low is so important. If utilities can shift recharging to non-peak hours, they can delay investment until the number of EVs has grown enough to make it profitable.

Some states have also put in place specific equity requirements for EV roll-outs, Sahoo noted. These ensure that some of the money raised to build EV infrastructure will go to underserved communities, perhaps in the form of better infrastructure or perhaps improved EV bus service.

“There is a lot of research that shows electricity sales from EV use can put downward pressure on rates” by increasing market size and profitability, Neville added. “Besides, EVs do not just offer benefits to EV drivers. Cleaner air doesn’t care who is driving the car. EVs will improve emissions for everyone.”

To truly maximize environmental benefits, though, utilities will have to shutter carbon-emitting power plants and boost renewable energy. This is already happening in the U.S., where wind and solar account for nearly all planned new generating capacity.

Both wind and solar provide intermittent power and utilities are learning to manage this. The more critical issue involves timing. Engineers place wind turbines where winds are steadiest. The turbines produce more power at night when winds are strongest, which aligns with initiatives to get EV drivers to charge at night.

Solar power is another story. A growing source of electricity in California and other desert states, it stops producing power when people return home from work. Yet, California and other desert states where skies are sunny almost every day are investing heavily in new solar power.

In California, for example, solar power doubled in just five years to reach 15 percent of total electricity production. Utilities now have so much solar on the

grid that their new rates have off-peak times in the middle of the day, observed Chris Nelder, an analyst who headed the Rocky Mountain Institute’s carbon-free mobility practice for 15 years.

To put this resource to work, desert state utilities may need to encourage new types of infrastructure, such as chargers at offices, parking garages, retail locations, and grocery stores. Low-cost, long-term batteries may also help level the load by lowering the cost of charging at night and compensating for cloudy days.

This is all happening against the backdrop of a changing power grid, Sahoo noted. The grid is growing smarter and more distributed. At the same time, there is a push to electrify everything from buildings and boilers to home appliances to reduce carbon emissions.

One thing is certain however, EVs will play a big role in those changes. Take, for example, rooftop solar systems on private homes. One day, said Ben Kroposki, director of power systems engineering center at the National Renewable Energy Lab, homeowners might complement those systems with EVs and backup batteries to create a more decentralized energy grid where people can recharge their EV and power their appliances.

They could also sell solar power back to the grid with a bidirectional (vehicle-to-building, or V2B) energy system.

A more distributed power grid may take advantage of solar power to charge EVs at work during the day.

**“AS EV DRIVING RANGES INCREASE AND COSTS FALL, IT WILL CREATE A NEW TYPE OF GRID AND REFUELING INFRASTRUCTURE.”**

David Slutzky, CEO and founder of Fermata Energy, a V2B startup, believes such systems could save fleet owners with fast chargers thousands of dollars per vehicle annually. Eventually, they might work for consumers as well.

Will that happen? There are still technical hurdles, but grid and its growing EV fleet are a work in progress. As EV driving ranges increase and costs fall, it will create a new type of grid and refueling infrastructure. Innovators will continue to find new ways to generate, store, buy, and sell electricity.

And eventually, even those two out of five car buyers who said they would not consider an EV are likely to get onboard.

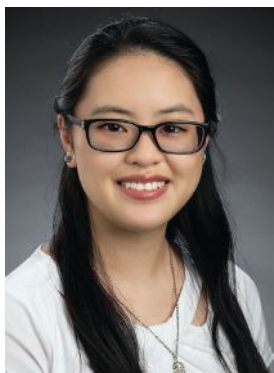
ALAN S. BROWN has written broadly about engineering, technology, and science for more than 30 years. He is a board member of Science Writers in New York, a writer for The Kavli Foundation, a former senior editor of ASME’s *Mechanical Engineering* magazine, and contributes to a wide range of publications. He graduated *magna cum laude* in 1974 from Hofstra University and can be reached at: [insight01@verizon.net](mailto:insight01@verizon.net).



# Association Awards

## ★ Laureates

Four Laureates have been selected in the 39<sup>th</sup> year of Tau Beta Pi's annual program to recognize gifted engineering students who have excelled in areas beyond their technical majors. Award categories include arts, athletics, diverse achievements, and service. This year's Laureates join 113 other outstanding Tau Bates to be cited since the program began in 1982.



### KARA L. COMBS

OHIO MU '21

Kara has been selected a 2021 TBPI Laureate for service. She will complete an industrial and human factors engineering master's degree in December, having already earned a bachelor's degree in industrial & systems engineering from

Wright State University (WSU).

Kara is a well-rounded student who exhibits exemplary leadership through participation in TBPI, IISE, and the Dean's Student Advisory Board. In addition, she coached a middle school Academic Challenge team for three years, leading them to three top-ten finishes at The Ohio State Championships.

She is heavily involved in the local Quiz Bowl circuit and volunteers her time as a WSU College of Engineering and Computer Science student ambassador/mentor and in the audio room at her church.

Kara has been a key member of WSU's Institute of Industrial and Systems Engineers (IISE) chapter since her freshman year. She served two terms as vice president and as the media master, helping lead the chapter to eight straight Gold Awards. In addition, Kara helped start a STEM Idol program, speaking to local high school students. The program introduces students to IISE and will expand to virtual sessions on statistics and programming. After initiation into the OH Mu Chapter in 2018, she was immediately elected corresponding secretary, later served as chapter vice president, and currently is a chapter advisor. After graduating with a B.S. degree, she was selected to serve on the TBPI Student Advisory Board.

In Kara's nomination packet, she was described as a "mature, helpful, service-oriented, and bright young woman." Her chapter believes that she "exemplifies the spirit of liberal culture in engineering."



### CARISSA G. DOPMAN

NEW YORK SIGMA '21

For her achievements in the arts, Carissa has been named a 2021 TBPI Laureate. She is a recent graduate with a B.S. degree in glass engineering science from Alfred University (AU) and previously earned a B.F.A. in fine arts.

According to the nomination packet, her mission is to "bridge the gap between art and science." After completing her art thesis, she was invited to show her work at the first all-female collection of neon artists. Carissa's neon work has been featured in numerous shows and highlighted in press releases and articles.

Carissa's motivation to study glass engineering as a neon artist comes from a desire to understand the materials and physics that allow artists to manipulate glass. Her thesis work explains the connection between engineering and art as she researches an alternative to mercury to be used to produce colors in neon. Discovering the solution to enhance the UV properties of argon would be a huge contribution to the neon art industry.

In 2019, she was initiated into the NY Sigma Chapter and was elected vice president. Her work for the chapter has included providing eligible students with special/handmade invitations and creating electronic templates of important chapter documents. She recently served as NY Sigma Chapter president and is now an advisor to the chapter.

In a recommendation letter from the dean of the Inamori School of Engineering, Carissa was lauded for an "incredible work ethic, serving her peers (especially women), community service, and finding creative solutions to keep the TBPI chapter engaged and interactive during the pandemic."

The nominating chapter cited her for earning two degrees in six years, instructing art students, dedication to service, and tirelessly contributing to liberal culture with unmatched passion.

## ★ Laureates



### **TYLER A. KLEINSASSER**

**SOUTH DAKOTA ALPHA '19**

Tyler's diverse achievements have led to being named a 2021 TBII Laureate. Graduating with B.S. and M.S. degrees in civil engineering and construction engineering management respectively, he is now working on a second master's, all from

South Dakota School of Mines and Technology (SDSM&T).

His strong record of leadership and extracurricular activities at SDSM&T as well as his participation in residence life, honor societies, and student government resulted in being selected for the university's prestigious Leadership Hall of Fame in 2019.

Tyler is committed to cultural and global inclusion evidenced by international volunteer work in places like Chile, Jamaica, Haiti, and Guam. He is active in the communities of Rapid City, SD, and his hometown of Huron, SD.

In a letter supporting Tyler's nomination, he was cited as a "well-rounded individual with a strong work ethic, impressive interpersonal skills, and a positive attitude."

Initiated into the SD Alpha Chapter in 2016, his activities include helping plan a campus-wide leadership conference in 2019, volunteering at initiation ceremonies, and participating in chapter socials. He is a Tau Beta Pi Scholar (2017) and Fellow (2019).

On campus, Tyler is heavily involved with the Professional Development Institute that provides training for engineering students and also completed the Mines Advantage Professional Development Program.

The nominating chapter highlighted Tyler's scholarly excellence (he owns a 4.0 GPA), commitment to community service, and focus on lifelong learning and development of his exceptional talents both in and outside of the field of engineering.



### **MICHAEL USTES**

**MICHIGAN IOTA '22**

Michael has been named a 2021 TBII Laureate for diverse achievements. He is working on an M.S. degree in mechanical engineering (ME) and previously earned dual B.S. degrees in manufacturing and ME, from the University of Michigan-Dearborn.

He enriches the UM-Dearborn campus through engagement, service, and leadership in student organizations such as Formula SAE Combustion Racing (team captain and manufacturing lead in 2021), Society of Manufacturing Engineers (president 2019-21), Pi Tau Sigma (rebuilt the chapter and served as president 2019-20), and Catholics on Campus (VP in 2020).

Michael has stepped up as a leader and redefined many societies on a commuter campus where these organizations play a key role in bridging the gap to offer opportunities to keep students engaged.

In a recommendation letter, Michael was described as "an exceptional student with outstanding analytical and problem solving skills and a provider of citizenship to the college leading to a stronger sense of community and pride."

After initiation into the MI Iota Chapter in 2018, he has been a chapter officer mentor while serving two terms as chapter president and one concurrently as recording secretary. He has worked to better publicize TBII and promote student recruitment leading to growth in membership.

Michael also gives back to the UM-Dearborn community as a mathematics tutor and by volunteering to reestablish the core engineering tutoring program of the MI Iota Chapter. As a grad student, he is redesigning an undergraduate course in ME for better student retention and future application in a practical sphere.

The nominating chapter cited him for incredible leadership, dedication to improvement of the student experience, and as a role model for all.



# Association Awards

## ★ McDonald Mentor

Established in 2005, the Tau Beta Pi-McDonald Mentor Award celebrates **excellence in mentoring and advising among educators and engineers who have consistently supported the personal and professional development of their students and colleagues.** It recognizes those who have shown true concern for individuals, supported an environment for developing talents, and earned respect and recognition in their field and the greater community.



### JAMES C. WILLIAMS Ph.D., P.E.

NEW MEXICO BETA '76  
NOMINATED BY TEXAS ETA

James C. Williams has been named the 2021 TBPI-McDonald Mentor. He is a professor and serves as associate chair of the civil engineering department at the University of Texas at Arlington (UTA).

Dr. Williams will receive \$1,000, an engraved medallion, and a lapel pin that is a replica of the medallion. Another \$1,000 grant will be presented to Texas Eta, the nominating chapter.

Established by Marion and Capers W. McDonald, NC G '74, and the Association, the McDonald Mentor Award recognizes engineering educators or professionals in industry, government, or service organizations.

Dr. Williams received B.S. and M.S. degrees in civil engineering from the University of New Mexico and a Ph.D. in civil engineering from University of Texas at Austin. He has been at UTA for more than 30 years.

An Advisor to the TX Eta Chapter since 1992, Dr. Williams also serves as a faculty advisor for the ASCE student chapter and as Chi Epsilon president since 2014. He has served on multiple committees for the American Society of Civil Engineers and the Institute for Transportation Engineers.



In the nomination packet, Dr. Williams was cited as an academic advisor known for "catering to students' needs and working tirelessly to ensure that they are successful." This work earned him the Outstanding Academic Advisor Award for UTA in 2007.

As a TX Eta Chapter Advisor, he was commended for continuously supporting the chapter in their operations and attending social events. Dr. Williams also assisted in the installations of both the Texas Mu (2002) and the Texas Xi (2020) Chapters of TBPI.

Dr. Williams provides the same quality guidance to other student chapters that he leads, including helping the ASCE student chapter host the 2020 Texas-Mexico Student Symposium. This event drew more than 400 students and professionals. Such support has earned Dr. Williams multiple awards as an ASCE advisor.

In a letter of recommendation from the Executive Director of Chi Epsilon, Dr. Williams was described as "having a heart for all students, earning the respect and recognition within the field of transportation engineering, and as a role model inspiring a generation of civil engineers to work professionally and ethically."

His many accomplishments include: Transportation Engineer of the Year by TexITE in 2005 and being elected a Fellow of both ASCE and ITE. Prior to employment at UTA, he worked as a traffic engineer for five years with the Texas Department of Transportation. Most of the courses he teaches at UTA are transportation and traffic engineering and he also teaches the intro to engineering class.

Upon his reelection as president of Chi Epsilon, he was cited by a colleague and mentee:

"Dr. Williams has dedicated much of his life to supporting students and has been a mentor to me and a pillar in my career for two decades. The seismic changes he has implemented in his first term as president of Chi Epsilon have set the stage for a renaissance of our organization. There is no better person to guide us into this next phase of the society."

For his commitment to mentoring and dedication to advising student organizations, **we honor Dr. James C. Williams as the 2021 TBP-McDonald Mentor.**



## ★ Outstanding Advisor

The Tau Beta Pi Outstanding Advisor has been named since 1994 and recognizes outstanding performance among the Chapter Advisors of the Association. Selection is made by a committee of deans at engineering colleges and past award winners.

### SUE L.R. HOLL Ph.D.

CALIFORNIA LAMBDA '97  
NOMINATED BY CALIFORNIA  
UPSILON

Sue Holl, Professor Emeritus at California State University, Sacramento (CSU), is the 2021 TBPI Outstanding Advisor.

She will receive \$1,000, a commemorative plaque, and another \$1,000 grant will be presented to the Sacramento State College of Engineering's discretionary fund.

The Outstanding Advisor Award recognizes chapter advisors, lauds excellence in engineering education, and in the ethical practice of engineering.

Dr. Holl was the driving force behind the establishment of the CA Upsilon Chapter in 1984 and she continues to be the backbone of the chapter as Chief Advisor, leading through her contributions and passion.

She earned a B.S. in electrical engineering and B.S. and M.S. degrees in materials science & engineering from the University of California, Davis, and a Ph.D., from the University of California, Berkeley, also in materials science & engineering. Dr. Holl joined Sac State in 1980.

Her service to the Association began as an undergraduate officer at the CA Lambda Chapter. In addition to being an Advisor, Dr. Holl served on the TBPI Fellowship Board from 1994-2014,



supported the 2008 Convention hosted in Sacramento by the CA Upsilon Chapter, and was elected to the TBPI Executive Council (2014-18), and was president in 2018.

In her nomination, Dr. Holl was lauded for "investing countless hours into helping the chapter grow and providing a flourishing environment for students to learn the values required to become effective leaders."

Her encouragement of the chapter led to the 2019 Engineering Futures Conference being hosted at Sac State on leadership. The event was so successful that it is now an annual event.

In the classroom, Dr. Holl directs students to develop their soft skills to improve effectiveness in the workplace and their personal lives. She does this, in part, by promoting attendance at Engineering Futures Sessions that are regularly attended by 50+ students.

The TBPI Convention is truly Dr. Holl's favorite event, motivating the chapter to send as many possible attendees each year. She has contributed financially to help support representatives struggling to afford expenses.

Dr. Holl's accomplishments are farreaching due to her unique leadership style. Instead of completing work that should be done by chapter officers, she equips student leaders with the tools needed to be successful. She inspires instead of orders and this establishes a "positive culture within each community where she is a member."

Before joining academia, Dr. Holl was a member of the technical staff at Sandia National Laboratories. Her previous roles at Sac State include professor of materials science (1985-2017), chair of the department of mechanical engineering (2008-17), and as professor emeritus, where she continues to hold a 50 percent teaching appointment.

The dean of Sac State College of Engineering and Computer Science summarized: "Dr. Holl is loved, respected, and appreciated. As a result of her dedication, countless TBPI students have used principles learned in Tau Beta Pi to advance their careers."

For her role as a mentor, guiding with inclusive support, and providing advice to students of all different paths, **Dr. Sue Holl is the 2021 Tau Beta Pi Outstanding Advisor.**

# Association Awards

## ★ Distinguished Alumni

Distinguished Alumni are recognized for their demonstration of outstanding adherence to the ideals of Tau Beta Pi (integrity, breadth of interest, adaptability, and unselfish activity) and for fostering a spirit of liberal culture in society.



### NEAL A. McCALEB P.E.

OKLAHOMA GAMMA '57

In recognition of *service to his country and success as a business leader*, Neal A. McCaleb, P.E., **has been named a 2021 TBPi Distinguished Alumnus.**

Mr. McCaleb earned a B.S. in civil engineering from Oklahoma

State University (OSU), then known as Oklahoma A&M College. He is a professional engineer and political leader with Native American Heritage — proud member of the Chickasaws.

In 1974, he began his career in politics after being elected to the Oklahoma House of Representatives, remaining in the House until 1983, and serving as House Minority Leader until his retirement from the Legislature. Mr. McCaleb was appointed as the state's first Secretary of Transportation in 1986 by the Governor of Oklahoma and served concurrently as Director of the Oklahoma Department of Transportation.

Mr. McCaleb was appointed to key positions by three U.S. presidents and four Oklahoma Governors, including President George W. Bush, who in 2001 appointed him Assistant Secretary of the Interior for Indian Affairs in the Department of the Interior.

After leaving federal government service, he worked as an advisor to Bill Anoatubby, Governor of the Chickasaw Nation. Mr. McCaleb was appointed chairman of the board of Chickasaw Nation Industries, responsible for promoting the economic development of the tribe.

He was initiated into Tau Beta Pi as an alumnus member in 1976. The description in his nomination package reads: "few individuals have served their country, tribe, and state as ably as Neal. He has been a mentor and an example for many."

Mr. McCaleb now serves as an Ambassador at Large for the Chickasaw Nation. He is a shining example of a distinguished life of service with recommendations from a university president, acting Congressman, and Governor.



### JAMES A. MOMOH Ph.D.

DISTRICT OF COLUMBIA ALPHA '75

In recognition of *his faith, commitment to diversity, and role in developing future engineers*, James A. Momoh, Ph.D., **has been named a 2021 TBPi Distinguished Alumnus.**

Dr. Momoh was born in Nigeria, obtained B.S. and Ph.D. degrees

in electrical engineering from Howard University, and M.S. degrees in electrical & systems engineering from Carnegie Mellon and UPenn, respectively. He also earned an M.A. in the theology from The Howard School of Divinity and is an ordained minister.

Dr. Momoh upholds a strong belief in the importance of religious freedom and racial and gender harmony. An example of his commitment to diversity and inclusion is the NSF-funded Center for Energy Systems and Controls that he founded and helped grow to become one of the top three research centers in the college. He helped attract a diverse faculty while serving as electrical engineering department chair from 1990-2000 at Howard.

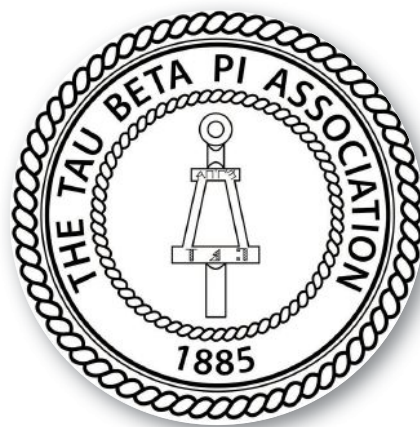
A former student (now engineering professor) wrote: "Dr. Momoh is equally committed to education and service. He challenges his students to be innovative thinkers and inspires them to complete degrees in engineering."

Outside of Howard, he served as program director for the National Science Foundation (2001-04) and most recently as executive chairman and CEO of the Nigerian Electricity Regulatory Commission (since 2018).

Dr. Momoh readily shares his knowledge and talents through lectures, presentations, eight books (with two best sellers), and through mentoring. He also works hard to organize workshops and summer institutes that promote learning, research, and the practice of power engineering.

He has been honored with many awards, including IEEE Life Fellow, NAE member, and for his work with the NSF. These remarkable achievements and his sermons on world peace demonstrate his spirit of liberal culture.

Five Distinguished Alumni were selected for 2021. The fifth profile is on page 16. The press release is available on the website at: [www.tbp.org/pressReleases.cfm](http://www.tbp.org/pressReleases.cfm)



## RICHARD J. SPONTAK Ph.D.

PENNSYLVANIA BETA '83

In recognition of *his passion for research & writing, innovation, and teaching*, Richard J. Spontak, Ph.D., **has been named a 2021 TBPI Distinguished Alumnus.**

He earned a B.S. degree in chemical engineering from Pennsylvania

State University and a Ph.D. in chemE from the University of California, Berkeley. He also completed two post-grad research fellowships at the Univ. of Cambridge and the Institute for Energy Technology.

Dr. Spontak's career began as a soft materials engineer at Procter & Gamble. He accepted a faculty position at North Carolina State University in 1992 because of his love of teaching and mentoring students. Today, he is a Distinguished Professor of chemical & biomolecular engineering and has established the Macromolecular Materials & Morphology Group.

His research in the field of condensed matter has led to 100+ publications in peer-reviewed journals and has been featured on 30+ journal covers, including *Microscopy Research and Technique* and *Langmuir*.

Dr. Spontak's striking publication record and substantial contributions across a breadth of topics was lauded in his nomination: "His ability to design and work effortlessly with novel materials...is a joy to witness, and I have always been impressed by his creative approach to scholarly research."

He has traveled around the globe to deliver seminars and teach courses in an effort to forge new collaborations, serve as a goodwill ambassador, and benefit the lives of others through dissemination of knowledge and ideas.

He was recognized and nominated by the Research Triangle Alumni Chapter (NC) for being a leading advocate of interdisciplinary undergraduate research and leading teams to national awards. His colleagues attribute these victories to the "Spontak flair" in which he utilizes his unique problem-solving strategies and time management methods. This, together with his boundless optimism and resourcefulness, has helped guide many through a wide range of challenges.



## MARTIN C. JISCHKE Ph.D.

IOWA ALPHA '63

In recognition of *leadership and lasting impact in academia*, Martin C. Jischke, Ph.D., **has been named a 2021 TBPI Distinguished Alumnus.**

He obtained a B.S. degree in physics from the Illinois Institute of Technology and S.M. and Ph.D. degrees in

aeronautics & astronautics from the MIT.

Dr. Jischke is President Emeritus of Purdue University, began his career as an engineer with RAND Corp., and continued as a research fellow at NASA. He joined the University of Oklahoma (OU) in 1968 as an assistant professor. In 1975, he spent a year as a White House Fellow and special assistant to the Secretary of Transportation at the U.S. DOT.

A prominent administrator and advocate of higher-education, he served as dean of the OU College of Engineering (1981-86), chancellor of the University of Missouri-Rolla (1986-91), president of Iowa State University (1991-2000), and president of Purdue University (2000-07).

Dr. Jischke has made many civic, educational, and professional contributions from the local to the national level. These include service to nonprofit organization governance, leadership to intercollegiate athletics, and community service.

He founded/served as president of the Global Consortium of Higher Education and Research for Agriculture, won the Indiana International Citizen of the Year (2007), served as founding chair of the Big 12 Conference Board of Directors focused on improving intercollegiate athletics, and is author/co-author of 52 journal publications and technical reports.

At each of the universities where he was president, he and his wife Patty initiated and led leadership classes with students to help broaden their horizons and develop their leadership skills. He fostered the idea of the "Engaged University" which emphasizes mutually beneficial partnerships with the broader community to both strengthen the community and broaden the educational experience of students.

He was cited for being an inspirational, dynamic leader and talented educator with knowledge and expertise that embodies the spirit of liberal culture.

# Association Awards

## ★ Distinguished Alumni

Continued from page 15.



### EDWARD KAPLAN

ILLINOIS BETA '65

In recognition of *entrepreneurship, contributions to society, and support of future leaders*, Edward Kaplan **has been named a 2021 TBII Distinguished Alumnus.**

He received a B.S. in mechanical engineering from the Illinois

Institute of Technology (IIT) and an MBA from the University of Chicago.

Mr. Kaplan is co-founder (1969) of Zebra Technologies (originally Data Specialties), a leader in barcode printing technology, where he served as CEO, director, and president. Zebra quickly became a leader in the business through an innovative printing technology based on thermal transfer for on-demand barcode printing. The Z-130 technology revolutionized barcode printing because it was able to print on virtually any surface.

He led new product development and expansion for 37 years, until his retirement in 2007. Zebra, a multi-billion dollar business continues to be an industry leader, having acquired Motorola Solutions-Enterprise Business in 2014.

Mr. Kaplan has had great professional success and a broad impact on society through innovation, but he has also given significant time and dedicated his talents through philanthropy. Examples include, being a member of the Board of Directors of Hyde Park Angels (investors) and in 2017, with his wife, founding the Kaplan Leadership Initiative, an endeavor to empower "the next generation of local Jewish leaders to guide their communities into the future through collaboration and innovation."

He has also supported his alma maters, including crafting the vision and mission for the Ed Kaplan Family Institute of Innovation and Tech Entrepreneurship at IIT. The Institute focuses on transitioning new ideas to products and developing skills for future leaders.

Mr. Kaplan was described in a letter of recommendation as "industrious, with an extraordinary work ethic," whose decades of hard work and acclaimed engineering career have enabled him to prioritize giving back. He is an exemplary role model for fostering a spirit of liberal culture.

## VANGUARD APPOINTED as INVESTMENT ADVISOR for TAU BETA PI TRUST FUND

Vanguard has been selected as the new Investment Manager/Advisor to work with the Trust Advisory Committee (TAC) in managing and directing the investment of the Tau Beta Pi Trust Fund.

TBII established a Fellowship Fund Trustee in 1930 to oversee its investments in the Fellowship Program and its Life Subscription Fund. This was replaced in 1964 by a corporate trustee and a three-member TAC to oversee its investments. Initial investments were in bonds, but were expanded to include mutual funds in 1991. The TAC was increased to five members in 2019.

Prior to the change to Vanguard, PNC Bank served as trustee with investments in Harbor Capital Funds, Dodge & Cox, Dimensional, and PIMCO.

The Association had a productive relationship with PNC Bank dating back to 1991, but the Executive Council (EC) and the TAC wanted to consider what options were available since TBII had not recently explored the investment advisor area. Based on recommendations from the 2019 Financial Review Committee, the Executive Council directed the Council Finance Committee to prepare a Request for Proposal (RFP) for an Investment Advisor.

The TAC selected 12 companies to consider in the RFP process: Goldman Sachs, Harbor, J.P. Morgan, Vanguard, Northern Trust, Russell Investments, UBS, Graystone Consulting, PNC, Stifel, Fidelity, and ACG. Six were selected for final interviews.

Vanguard was chosen as the Investment Advisor and the transition was completed on July 31, 2021. They will maintain the 90/10 Equity/Fixed Income Allocation. The value of the trust was \$41.6 million on July 31, 2021. Members of the Trust Advisory Committee include James W. Johnson Jr., *NCA '77*, Chair; Harry W. Lange, *MI Z '75*; Yung B. Lim, *NJ D '87*; David A Liu, *PA D '93*; and Brent S. Beardsley, *TX D '93*.

# The STORY BEHIND The PHOTO

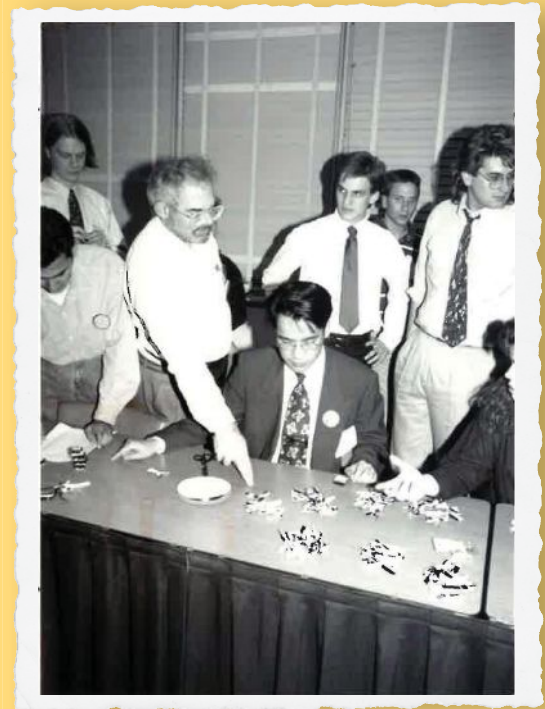
## Announcing the Fall 2021 “Caption This Photo” Contest!

This photo, from the Winter 1994 issue of *The Bent*, was taken at the 1993 Convention in West Lafayette, IN. Director of Rituals Alan R. Hirsch, MA B '66, points to the stacks of bows tied by members of the Rituals Committee for use at the model initiation.

**How to Enter:** Send us your cleverest caption(s) for this photo from *The Bent* archives. If the judges vote yours as one of the top three (and you have not been a previous winner), we'll send you a TBΠ t-shirt of your choice!

Email your entry to [captions@tbp.org](mailto:captions@tbp.org) or mail to *The Bent* of Tau Beta Pi, Caption Contest, P.O. Box 2697, Knoxville, TN 37901-2697.

**DEADLINE: MONDAY, NOVEMBER 1, 2021.**



## The WINNERS of the Summer 2021 “Caption This Photo” Contest:

The Summer 2021 contest produced 33 witty captions from 26 readers who range in age from the class of 2021 to 1958. Thank you! View all entries, including captions and results from recent contests, at [tbp.org/pubs/captionContest.cfm](http://tbp.org/pubs/captionContest.cfm).

**1ST PLACE:**  
[by a landslide!]

**“When you are trying to look very interested so you don’t have to make small talk to the engineer next to you!”**

Elise M. Berning, MN A '21

**2ND PLACE:**

**“The heck with the charts and certificates on the wall. I want to know what that little thing is that’s crawling across the table.”**

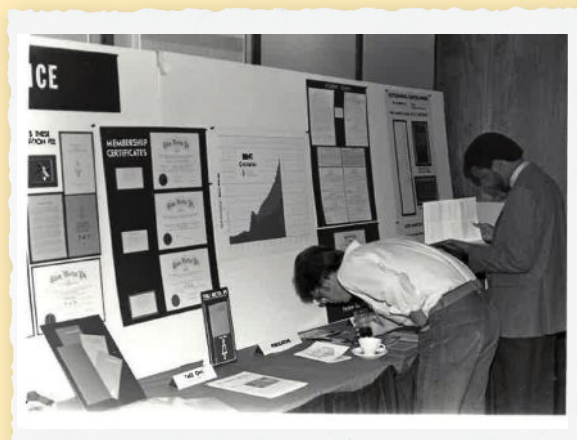
Richard J. Zuccaro Jr., NY E '74

**3RD PLACE (2-way tie):**

**“Are these files ...scented??”**  
Elizabeth Bartuska, PA B '21

**3RD PLACE (2-way tie):**

**“I can’t believe they spelled my name wrong AGAIN!!”**  
John F. O'Rourke, PA Z '73



**CONGRATULATIONS  
TO OUR WINNERS!**

**T-SHIRTS ARE IN THE  
MAIL.**

▲ The Summer 2021 Caption Contest image was taken at the 1980 Convention in Tulsa, OK, where the Headquarters display drew close scrutiny.

# TBP SCHOLARS

261 undergraduate engineering scholarships have been awarded for the 2021-22 year.

The Fellowship Board announced the selection of 261 engineering students from 392 applicants. Most recipients will receive a cash award of \$2,000 for one year and a few will receive \$1,000 for one semester. This year, a total of \$504,000 was awarded. All TBI Scholarships are awarded on the competitive criteria of high scholarship, campus leadership and service, and promise of future contributions to the engineering profession. These awards bring the total to 3,629 scholarships granted since 1998.

**Matthew T. Ackerman** SD B '22  
**Alford No. 20** |Electrical eng'g

**Ahouba Christie Agbalessi** NY II '22  
**Althouse No. 13** |Electrical eng'g

**Gaurav Aggarwal** NJ B '22  
**Stabile No. 992** |Mechanical eng'g

**Nicholas K. Agtural** CA E '23  
**Forge No. 119** |Mechanical eng'g

**Bonnie C. Akhavan** NY Δ '22  
**Stabile No. 931** |Computer Science

**Candelaria Alayon** OK B '22  
**Stabile No. 1007** |Mechanical eng'g

**Ryan M. Albrecht** SD B '22  
**Stabile No. 1011** |Mechanical eng'g

**Sydney A. Alderfer** CO Δ '21  
**Record No. 1680** |Biomedical eng'g

**Constance T. Alderson** TN A '21  
**Sickafoose No. 9** |Chemical eng'g

**Melanie Alpert** NJ B '22  
**Stabile No. 993** |Mechanical eng'g

**Joshua D. Anderson** OK Γ '22  
**Record No. 1671** |Aerospace eng'g

**Alexander R. Appel** IN Δ '22  
**Stabile No. 917** |Computer eng'g

**Erika A. Auner** MI H '22  
**Record No. 1687** |Biomedical eng'g

**Oreoluwa A. Babatunde** WY A '22  
**Stabile No. 926** |Computer eng'g

**Juan S. Banchs** CA E '22  
**Forge No. 112** |Mechanical eng'g

**Abigail P. Bandl** NY T '22  
**Record No. 1694** |Biomedical eng'g

**McKenzie A. Barlow** OH N '22  
**Stabile No. 952** |Electrical eng'g

**Thomas A. Batt** NY Y '22  
**Dechman No. 7** |Chemical eng'g

**Duncan T. Bauserman** KS A '22  
**Stabile No. 984** |Mechanical eng'g

**Marisa N. Bausone** VA E '22  
**Record No. 1727** |Chemical eng'g

**Ethan A. Beachy** OH N '22  
**Stabile No. 1002** |Mechanical eng'g

**Sterling Belaire** CA E '22  
**Forge No. 120** |Mechanical eng'g

**Caleb M. Bengs** OK Γ '21  
**McCaleb No. 1** |Aerospace eng'g

**Andrew D. Bergmann** OH I '22  
**Record No. 1742** |Civil eng'g

## The following scholarships are named for members:

Henry M. Alford, *MS A '27*, left a bequest sufficient to permanently endow the **Alford Scholarships**.

The **Althouse Scholarship** honors Ernest E. Althouse, *PA A '26*, who left a bequest in 2006.

The **Bloomberg Scholarship** is named for Michael R. Bloomberg, *MD A '64*, whose gifts have funded one award for 15 years.

Marian K. and John H. Brems Jr., *MI Γ '46*, left a bequest to fund the **Brems Scholarships** in 2016.

Ruth M. and Cleveland L. Campbell, P.E., *IA A '47*, made gifts to permanently endow the **Campbell Scholarships**.

A 2007 bequest from the estate of Richard A. Curtis, Ph.D., *OH A '64*, permanently endows the **Curtis Scholarship**.

The **Dechman Scholarship** was established by David, *VA B '82*, Ken, and Jim Dechman, *TX A '89*, to honor their father, Don A. Dechman, *TX A '57*, on his 80<sup>th</sup> birthday.

The **Dodson Scholarships** are sponsored by the late Charles R. Dodson, *MD B '30*, who made gifts to the Association in 1998 and 1999.

Charles O. Forge, *CA Γ '56*, left a bequest in 2010 to support the **Forge Scholarships**.

The **Jischke Scholarship** is in recognition of Martin C. Jischke, Ph.D., *IA A '63*, a 2021 recipient of the TBI Distinguished Alumnus Award.

The **Kaplan Scholarship** is in recognition of Edward Kaplan, *IL B '65*, a 2021 recipient of the TBI Distinguished Alumnus Award.

The **McCaleb Scholarship** is in recognition of Neal A. McCaleb, P.E., *OK Γ '57*, a 2021 recipient of the TBI Distinguished Alumnus Award.

The **Momoh Scholarship** is in recognition of James A. Momoh, Ph.D., *DC A '75*, a 2021 recipient of the TBI Distinguished Alumnus Award.

The **Nagel Scholarships** are given in honor of Robert H. Nagel, P.E., *NY Δ '39*, for his service as Editor & Secretary-Treasurer from 1942-82 and as Secretary-Treasurer Emeritus in 1982-97.

The **Record Scholarships** commemorate Leroy E. Record, *KS A '29*, whose generous bequest will provide earnings to support awards in perpetuity.

All Scholars submitted a short bio that has been posted on our TBP website at:  
[www.tbp.org/memb/ScholarArchives/ScholarBios/ScholarBios21-22.pdf](http://www.tbp.org/memb/ScholarArchives/ScholarBios/ScholarBios21-22.pdf)

**Annika M. Bergstrom** MI B '22  
**Scribner No. 60** | Environmental eng'g

**Joshua E. Bigley** WY A '22  
**Dodson No. 84** | Petroleum eng'g

**Gabriela C. Blanchard** CO A '22  
**Schwaller No. 11** | Chemical eng'g

**Madison R. Bland** NJ Z '22  
**Alford No. 21** | Electrical eng'g

**Kerry M. Blatney** PA Δ '22  
**Record No. 1675** | Bioengineering

**Ognjen Bosic** NY K '22  
**Stabile No. 996** | Mechanical eng'g

**Olivia M.L. Brasher** CA Δ '22  
**Dodson No. 83** | Electrical & Comp eng'g

**Ireland S. Braudaway** AL B '22  
**Stabile No. 936** | Electrical eng'g

**Remy E. Braun** IA A '22  
**Jischke No. 1** | Mechanical eng'g

**Elizabeth Breitbach** MN B '22  
**Record No. 1713** | Chemical eng'g

**Ethan Buerck** MO A '22  
**Skaggs No. 7** | Computer eng'g

**Allison R. Buffenbarger** NJ A '22  
**Stabile No. 947** | Electrical eng'g

**Sydney Bules** GA A '22  
**Record No. 1682** | Biomedical eng'g

**Noah D. Burchell** TN A '21  
**Stabile No. 966** | Industrial eng'g

**Amelia F. Burnett** KY A '23  
**Stabile No. 928** | Computer Science

**Catherine A. Burr** CO Δ '23  
**Record No. 1705** | Biomedical eng'g

**Emily B. Buten** OH Θ '21  
**Stabile No. 1004** | Mechanical eng'g

**Andrew M. Byrne** WI B '22  
**Stabile No. 1023** | Mechanical eng'g

**Stephen E. Cahoon III** AL E '22  
**Record No. 1748** | Computer eng'g

**Yuanqi Cai** MO Γ '22  
**Stabile No. 929** | Computer Science

**Braden K. Carroll** CO B '21  
**Record No. 1706** | Chemical & Biol eng'g

**Allison Y. Chen** CA E '22  
**Forge No. 111** | Computer Science

**Wonyoung Choi** OH A '22  
**Stabile No. 958** | Electrical eng'g

**Clare C.Y. Chong** LA Δ '22  
**Record No. 1711** | Chemical eng'g

**Caroline A. Christensen** IL Γ '22  
**Stabile No. 964** | Industrial eng'g

**Colin E. Chun** CA B '22  
**Forge No. 109** | Mechanical eng'g

**Michael S. Clark** NC A '23  
**Record No. 1691** | Biomedical eng'g

**Nicholas Clayton** KY Γ '22  
**GEICO No. 67** | Electrical eng'g

**Samantha E. Cobado** NY Δ '22  
**Skaggs No. 8** | Electrical & Comp eng'g

**Andrew C. Cochran** OH I '22  
**Stabile No. 951** | Electrical eng'g

The **Schwaller Scholarship** commemorates Shawn R. Schwaller, *SD A '95*, whose friends and family established a fund in 2007.

A bequest from A. Clayton Scribner, *NY Γ '29*, permanently endows the **Scribner Scholarships**.

The **Sickafoose Scholarships** are named for Kathleen A. and Robert D. Sickafoose, *IL B '50*, who left a bequest in 2012.

Glenn A. Skaggs, *MD B '57*, left a bequest in 2017 to permanently endow the **Skaggs Scholarship**.

The three **Soden Scholarships** are named for Archie D. Soden, *CA Δ '51*, who made gifts to TBP to fund scholarships in perpetuity.

The **Spirit of Apollo Scholarship** is supported by an anonymous donor to honor the legacy of the U.S. NASA Apollo program.

The **Spontak Scholarship** is in recognition of Richard J. Spontak, Ph.D., *PA B '83*, a 2021 recipient of the TBP Distinguished Alumnus Award.

The **Stabile Scholarships** are named for Vincent A. Stabile, *NY Λ '40*, whose gifts to the Association have permanently endowed scholarships.

**Corporations sponsor the remaining scholarships.**

The Alabama Power Foundation, Inc., made a gift in 1995 to endow an **Alabama Power Scholarship**, awarded for the 18<sup>th</sup> time.

Awarded for the 13<sup>th</sup> year, the **GEICO Scholarship** is sponsored through a partnership with GEICO insurance.

**This year's recipients have chosen the following engineering curricula:**

**65** MECHANICAL  
**31** CHEMICAL  
**31** ELECTRICAL  
**29** BIOMEDICAL  
**24** CIVIL  
**18** COMPUTER  
**11** AEROSPACE  
**8** ELECTRICAL & COMPUTER  
**7** COMPUTER SCIENCE  
**4** ENVIRONMENTAL  
**4** MATERIALS SCIENCE  
**3** BIOLOGICAL  
**3** INDUSTRIAL  
**2** BIOENGINEERING, ENGINEERING, INDUSTRIAL & SYSTEMS & NUCLEAR

*The other engineering fields of study include: Architectural, Acoustical, Applied Mathematics, Ceramic, Chemical & Biological, Chemical & Biomolecular, Chemical & Biomedical, Engineering Physics, Manufacturing, Materials, Mechanical & Aerospace, Management Information Systems, Operations Research, Petroleum, and Software.*

# TBP SCHOLARS

Continued

**Ayden S. Cohn** VA B '22  
**Stabile No. 1017** |Mechanical eng'g

**John R. Conklin Jr.** OH B '22  
**Stabile No. 1001** |Mechanical eng'g

**Michael J. Copley** UT B '21  
**Record No. 1745** |Civil eng'g

**Ian P. Cox** AL E '22  
**Record No. 1728** |Civil eng'g

**Justin H. Cox** SC B '22  
**Record No. 1698** |Biomedical eng'g

**David Crooks** CO E '21  
**Record No. 1731** |Civil eng'g

**Morgan M. Cupp** NY Δ '22  
**Skaggs No. 9** |Electrical & Comp eng'g

**Alyssa Davis** NJ A '22  
**Record No. 1738** |Civil eng'g

**Anton G. De Lesseps** IL Γ '22  
**Nagel No. 59** |Applied Mathematics

**Luiz A. De Siqueira Neto** IL Γ '22  
**Record No. 1734** |Civil eng'g

**Berkay R. Dean** TN Z '22  
**Stabile No. 956** |Electrical eng'g

**Elizabeth DeFazio** NJ B '22  
**Record No. 1715** |Chemical eng'g

**Shubh Desai** TX A '22  
**Record No. 1702** |Biomedical eng'g

**Shrikeshav P. Deshmukh** CA B '22  
**Forge No. 110** |Mechanical eng'g

**Ethan A. Deters** TN A '22  
**AL Power No. 18** |Nuclear eng'g

**Elizabeth K.C. Diaz-Gunning** OR Γ '22  
**Record No. 1747** |Civil eng'g

**Miller A. Dickerson** LA A '22  
**Record No. 1677** |Biological eng'g

**Savannah L. Dilley** CO A '24  
**Record No. 1730** |Civil eng'g

**Kellen R. Dorsey** CA Ξ '22  
**Brems No. 16** |Aerospace eng'g

**Emma A. Drum** TN A '22  
**Stabile No. 1013** |Mechanical eng'g

**Patrick A. Duane** NM Γ '21  
**Stabile No. 930** |Computer Science

**Robert J. Dunning** GA A '22  
**Stabile No. 979** |Mechanical eng'g

**Lauren E. Eccles** TN A '22  
**Sickafoose No. 10** |Chem & Biomol eng'g

**Kinor S. Eliaz** CO Δ '22  
**Stabile No. 937** |Electrical eng'g

**Spencer C. Ercanbrack** ID B '22  
**Stabile No. 1029** |Nuclear eng'g

**Morgan S. Ezell** CO A '21  
**Soden No. 18** |Chemical eng'g

**Yichen Fang** MO E '22  
**Record No. 1690** |Biomedical eng'g

**Audrey C. Fanning** NJ A '22  
**Stabile No. 991** |Mechanical eng'g

**Joel Z. Faynshmidt** NY T '22  
**Stabile No. 959** |Electrical eng'g

**Emmy R. Francek** OK A '22  
**Record No. 1697** |Biomedical eng'g

**Caroline M. Franklin** AL E '22  
**Stabile No. 974** |Mechanical eng'g

**Casey A. Freeman** TX E '22  
**Record No. 1725** |Chemical eng'g

**Cecilia P. Fugaro** MO B '22  
**Record No. 1673** |Architectural eng'g

**Brent D. George** UT B '22  
**Stabile No. 924** |Computer eng'g

**Benjamin D. Gersten** PA E '22  
**Stabile No. 1008** |Mechanical eng'g

**Joshua V. Go** CA AB '22  
**Forge No. 107** |Mechanical eng'g

**Bharat Goel** MI K '21  
**Stabile No. 946** |Electrical eng'g

**Madison N. Grace** AL E '22  
**Record No. 1729** |Civil eng'g

**Aurora L.J.X. Greane** IL Γ '22  
**Record No. 1683** |Biomedical eng'g

**Lauren O. Grove** MA E '22  
**Record No. 1674** |Bioengineering

**Theo W. Guidroz** IL B '21  
**Kaplan No. 1** |Computer eng'g

**Shubham Gulati** TN B '22  
**Record No. 1701** |Biomedical eng'g

**Samantha J. Guldán** MN A '22  
**Record No. 1689** |Biomedical eng'g

**Ashlyn M. Haack** IA A '22  
**Stabile No. 980** |Mechanical eng'g

**Luke Haider** MD Γ '22  
**Brems No. 18** |Aerospace eng'g

**Tess A. Hamilton** LA Γ '22  
**Record No. 1685** |Biomedical eng'g

**James S. Hampton Jr.** WI E '21  
**Stabile No. 961** |Engineering Physics

**Jessica C. Harding** OH A '21  
**Stabile No. 950** |Electrical eng'g

**Jordyn D. Hayden** FL Δ '22  
**Record No. 1749** |Computer eng'g

**Nicole J. Heflin** CA B '22  
**Forge No. 108** |Electrical eng'g

**Amanda K. Hertel** KS A '22  
**Record No. 1710** |Chemical eng'g

**Logan M. Hill** AZ Δ '22  
**Brems No. 14** |Aerospace eng'g

**Nora I. Himed** OH Θ '22  
**Stabile No. 923** |Computer eng'g

**Brandon G. Ho** NY I '22  
**Stabile No. 995** |Mechanical eng'g

**Chinh H. Hoang** WA Γ '23  
**Stabile No. 925** |Computer eng'g

**Taylor A. Hodes** KS A '22  
**Brems No. 17** |Aerospace eng'g

**Garret D. Huumala** SD B '22  
**Stabile No. 1012** |Mechanical eng'g

**Jonghyun Hwang** IL A '21  
**Stabile No. 982** |Mechanical eng'g

**Jeremy Inducil** CA Λ '22  
**Forge No. 116** |Environmental eng'g

**Daniel B. Isin** ID Δ '23  
**Stabile No. 938** |Electrical eng'g

**Kathryn J. Jackson** TN Z '22  
**Record No. 1724** |Chemical eng'g

**Mitchell D. Jans** MN B '22  
**Record No. 1736** |Civil eng'g

**Hayden L. Jenkins** AL E '22  
**Stabile No. 975** |Mechanical eng'g

**Rahul S. Joglekar** PA Γ '22  
**Record No. 1722** |Chem & Biomed eng'g

**Elaina M. Johnson** MO E '22  
**Stabile No. 989** |Mechanical eng'g

**Sophia E. Judge** MI H '22  
**Record No. 1688** |Biomedical eng'g

**Rachael L. Judy** OH N '22  
**Stabile No. 922** |Computer eng'g

**Jennifer Jung** MD Γ '22  
**Stabile No. 927** |Computer eng'g

**Meghana S. Kalluri** WI A '23  
**Record No. 1704** |Biomedical eng'g

**Nick G. Kaviani** VA E '22  
**Record No. 1703** |Biomedical eng'g

**Kaitlyn Keaton** MD Δ '22  
**Dodson No. 81** |Computer eng'g

**Matthew C. Kennedy** IN Δ '22  
**Record No. 1735** |Civil eng'g

**Estefanio M. Kesto** MI B '22  
**Stabile No. 945** |Electrical eng'g

**Catherine T. Kiela** TX Γ '22  
**Stabile No. 1014** |Mechanical eng'g

**Martin P. Kilbane** OH Θ '21  
**Stabile No. 1005** |Mechanical eng'g

**Kyoung M. Kim** MI Γ '21  
**Stabile No. 973** |Mechanical eng'g

**Megan E. Kinnane** KS Γ '22  
**Record No. 1684** |Biomedical eng'g

**Tyler D. Kitch** MT A '21  
**Campbell No. 51** |Computer eng'g

**Christopher P. Klopp** OH Θ '23  
**Stabile No. 1006** |Mechanical eng'g

**Parker L. Kotlarz** FL A '22  
**Record No. 1681** |Biomedical eng'g

**Alyssa K. Kryzanski** NY Γ '21  
**Stabile No. 967** |Materials eng'g

**Ashlyn R. Laird** AZ B '22  
**Dodson No. 85** |Chemical eng

**Shannon Lamb** CA Λ '22  
**Forge No. 115** |Biomedical eng'g

**Elizabeth R. Laughlin** NY Θ '22  
**Scribner No. 62** |Civil eng'g

**Harin Lee** MA H '22  
**Record No. 1686** |Biomedical eng'g

**Justin B. Leggin** SC B '22  
**Record No. 1699** |Biomedical eng'g

**Sydney K. Lewis** CT Γ '22  
**Record No. 1732** |Civil eng'g

**Alexander Liebeskind** NY A '22  
**Stabile No. 921** |Computer eng'g

**Kevin Lin** NY Y '22  
**Stabile No. 949** |Electrical eng'g

**Evan N. Lipton** CT A '22  
**Stabile No. 977** |Mechanical eng'g

**Sydney Lobato** TX I '22  
**Stabile No. 960** |Eng'g Mgmt Info Sys

**Sarah Loshinsky** NY T '22  
**Record No. 1695** |Biomedical eng'g

**Scotty P. Lucas** CA Φ '21  
**Forge No. 113** |Mechanical eng'g

**Ranjan Mahanth** PA Γ '22  
**Stabile No. 971** |Materials Sci & eng'g

**Alyssa L. Marciano** TX I '22  
**Stabile No. 1027** |Mechanical eng'g

**Nicole P. Martindale** IA A '21  
**Record No. 1733** |Civil eng'g

**Camilo E. Martinez Moyano** NJ Γ '21  
**Record No. 1692** |Biomedical eng'g

**Aleah J. Martone** OH N '22  
**Record No. 1743** |Civil eng'g

**Maria L. Martucci** NY Δ '22  
**Skaggs No. 10** |Electrical & Comp eng'g

**Liam Matthews** OH A '22  
**Record No. 1679** |Biomedical eng'g

**Anna M. Maupin** DC B '22  
**Scribner No. 65** |Civil eng'g

**Emily M. McCorkle** OH Θ '22  
**Record No. 1719** |Chemical eng'g

**Amanda D. McGraw** NY T '22  
**Stabile No. 963** |Industrial & Sys eng'g

**Joseph C. McKay** UT A '21  
**Stabile No. 1015** |Mechanical eng'g

**Hazel E. McKenzie** TX Θ '21  
**Stabile No. 934** |Electrical & Comp eng'g

**Madeline G. McKinney** OH Ξ '22  
**Record No. 1696** |Biomedical eng'g

**Amaya K. McNealey** NC E '22  
**Stabile No. 962** |Industrial & Sys eng'g

**Tara M. Meeker** OK A '22  
**Record No. 1720** |Chemical eng'g

**Marina D. Merritt** UT B '22  
**Record No. 1726** |Chemical eng'g

**Alexander T. Metcalf** NY B '22  
**Record No. 1669** |Aerospace eng'g

**Matthew R. Metzloff** NY Δ '22  
**Record No. 1678** |Biological eng'g

**Mark W. Miller** CA Ω '21  
**Scribner No. 64** |Engineering

**Anna J. Miller** IL A '22  
**Stabile No. 940** |Electrical eng'g

**Clayton E. Morgan** MO Δ '22  
**Stabile No. 988** |Mechanical eng'g

**David J. Mulligan III** OH B '22  
**Spirit of Apollo No. 8** |Aerospace eng'g

**William T. Murphy** MT B '22  
**Stabile No. 990** |Mechanical eng'g

**Catherine J. Nachtigal** NJ B '22  
**Stabile No. 994** |Mechanical eng'g

**Shiker S. Nair** MD A '22  
**Bloomberg No. 15** |Biomedical eng'g

**Kira J. Nicholson** PA M '22  
**Stabile No. 965** |Industrial eng'g

**Emeka J. Obi** TX Λ '22  
**Stabile No. 957** |Electrical eng'g

# TBP SCHOLARS

Continued

**Premanand Otilingam Sivakumar** DE A '22  
**Soden No. 20** |Chemical eng'g

**Gungor Cagatay Ozseker** VA Γ '22  
**Stabile No. 1020** |Mechanical eng'g

**Nicholas M. Pancheri** ID A '22  
**Record No. 1676** |Biological eng'g

**Audrey C. Parker** ID Γ '22  
**Stabile No. 968** |Materials Sci & eng'g

**John C. Pateros** CA Ξ '23  
**Stabile No. 976** |Mechanical eng'g

**Roberto C. Penaloza Valencia** SD B '22  
**Stabile No. 954** |Electrical eng'g

**Taryn E. Perry** IN B '22  
**Record No. 1709** |Chemical eng'g

**Michael R. Persch** NY O '23  
**Stabile No. 997** |Mechanical eng'g

**Jade P. Pinkenburg** NY Δ '22  
**Skaggs No. 11** |Electrical & Comp eng'g

**Zachary A. Pinkley** ID Γ '22  
**Stabile No. 981** |Mechanical eng'g

**Harold W. Pollard III** SC B '22  
**Record No. 1744** |Civil eng'g

**Sheetal Prasanna** IN Z '21  
**Stabile No. 918** |Electrical & Comp eng'g

**Aversa M. Prentosito** OH Ξ '22  
**Stabile No. 932** |Computer Science

**Roman D. Price** NY N '22  
**Record No. 1693** |Biomedical eng'g

**Jose A. Puentes** CA K '22  
**Forge No. 114** |Mechanical eng'g

**Sabiha Rahman** NJ A '22  
**Record No. 1714** |Chemical eng'g

**Sarah M. Raphael** MD Δ '21  
**Dodson No. 82** |Chemical eng'g

**Corlene A. Rhoades** MA Δ '22  
**Stabile No. 944** |Electrical eng'g

**Evan G. Robertson** MD Γ '22  
**Record No. 1672** |Aerospace eng'g

**Matthew E. Robinaugh** AZ Δ '21  
**Brems No. 15** |Aerospace eng'g

**Noah P. Robison** TN A '22  
**Record No. 1700** |Biomedical eng'g

**Elizabeth Rochford** OH B '22  
**Record No. 1670** |Aerospace eng'g

**Benjamin J. Rowan** OH N '22  
**Stabile No. 1003** |Mechanical eng'g

**Christopher L. Ruble** IN Δ '22  
**Stabile No. 983** |Mechanical eng'g

**Nicholas Rush** AL A '23  
**Stabile No. 935** |Electrical eng'g

**Chris K. Sadler** MI A '22  
**Stabile No. 985** |Mechanical eng'g

**Emma S. San Martin** NY Y '22  
**Stabile No. 999** |Mechanical eng'g

**Dominique Savage** AR A '22  
**Spontak No. 1** |Chemical eng'g

**Gillian Schiffer** NY Y '22  
**Record No. 1739** |Civil eng'g

**Denise C. Schlautman** MI Γ '23  
**Stabile No. 970** |Materials Sci & eng'g

**Gwyneth M. Schloer** VA B '22  
**Stabile No. 1018** |Mechanical eng'g

**Julia A. Schlottmann** DC B '22  
**Record No. 1746** |Civil eng'g

**Cecilia L. Schmitz** KS Γ '22  
**Stabile No. 942** |Electrical eng'g

**Alex P. Schwarte** IA A '23  
**Nagel No. 62** |Software eng'g

**Sommer R. Scott** SD A '22  
**Stabile No. 1010** |Mechanical eng'g

**Hannah M. Severns** NM A '23  
**Record No. 1716** |Chemical eng'g

**Muntasir Shahabuddin** MA A '22  
**Record No. 1712** |Chemical eng'g

**Ceenu P. Shaji** NM B '22  
**Stabile No. 920** |Computer eng'g

**Harrison S. Shapiro** NJ Δ '22  
**Stabile No. 972** |Mech & Aero eng'g

**James B. Sheets** WY A '22  
**Stabile No. 1025** |Mechanical eng'g

**Vedika Shenoy** CA Σ '22  
**Dodson No. 86** |Chemical eng'g

**Kyle D. Sherick** WA Γ '22  
**Stabile No. 1022** |Mechanical eng'g

**Anisha R. Shin** NJ A '22  
**Stabile No. 919** |Computer eng'g

**Benjamin E. Stenker** NY Θ '22  
**Record No. 1718** |Chemical eng'g

**Alexandria L. Smith** TN A '22  
**Scribner No. 63** |Civil eng'g

**Sheldon J. Smith** WI E '22  
**Stabile No. 1024** |Mechanical eng'g

**Raiza C. Soares** SD A '22  
**Stabile No. 933** |Computer Science

**Garrett L. Spargur** OH Δ '22  
**Record No. 1741** |Civil eng'g

**Pascal D. Spino III** WA B '21  
**Stabile No. 1021** |Mechanical eng'g

**Laura M. Steel** OK B '21  
**Record No. 1721** |Chemical eng'g

**Kristen L. Steudel** PA E '22  
**Stabile No. 1009** |Mechanical eng'g

**Logan Stevens** NH A '22  
**Record No. 1737** |Civil eng'g

**Reed M. Stobaugh** KY Γ '23  
**Stabile No. 943** |Electrical eng'g

**Jospeh B. Stone** ID Δ '22  
**Stabile No. 939** |Electrical eng'g

**Ekram Suleiman** MI Z '21  
**Stabile No. 986** |Mechanical eng'g

**Brandon Taing** CA E '22  
**Campbell No. 52** |Chemical eng'g

**Megan A. Talbert** CA O '22  
**Forge No. 118** |Electrical eng'g

**Jacob Tardif** VA Γ '22  
**Stabile No. 1019** |Mechanical eng'g

**Hamza Tasneem** SD B '22  
**Stabile No. 955** |Electrical eng'g

**Rifah Tasnim** NY P '22  
**Stabile No. 998** |Mechanical eng'g

# TBP SCHOLARS

Continued

**Adam Tawakkol** NY Y '22  
**Record No. 1740** |Civil eng'g

**Akash N. Thaker** PA Z '23  
**Stabile No. 953** |Electrical eng'g

**Basha Tropper** NY H '22  
**Record No. 1717** |Chemical eng'g

**Jayci M.Y. Tshako** CA O '22  
**Forge No. 117** |Civil eng'g

**Raymond Turrisi** RI B '22  
**Stabile No. 1026** |Mechanical eng'g

**Annie S. Ulichney** CT A '22  
**Stabile No. 1028** |Mechanical eng'g

**Joshua C. Vanderpool** UT B '23  
**Stabile No. 1016** |Mechanical eng'g

**Sophia G. Vaughan** IA A '23  
**Record No. 1707** |Chemical eng'g

**Maria G. Voss** NY Σ '22  
**Nagel No. 60** |Ceramic eng'g

**Madeline E. Wagner** MN A '22  
**Stabile No. 987** |Mechanical eng'g

**William Wang** CT A '22  
**Scribner No. 59** |Environmental eng'g

**Sidney D. Wantland** NC Z '22  
**Curtis No. 14** |Engineering

**Jakob M. Wegmueller** OH A '22  
**Stabile No. 1000** |Mechanical eng'g

**Alek A. Wereszczak** TN A '22  
**Record No. 1723** |Chemical eng'g

**Carmen J. Wilwert** IA A '22  
**Record No. 1708** |Chemical eng'g

**Sean A. Wirt** DE A '22  
**Soden No. 19** |Chemical eng'g

**Hannah M. Wiswell** DE A '22  
**Stabile No. 978** |Mechanical eng'g

**Ciana Witherell** MI Λ '22  
**Nagel No. 61** |Manufacturing eng'g

**Grace M. Wood** CT Γ '22  
**Nagel No. 58** |Acoustical eng'g

**JiaMin Wu** ID Γ '22  
**Stabile No. 969** |Materials Sci & eng'g

**Savannah M. Wujastyk** NY B '22  
**Scribner No. 61** |Environmental eng'g

**Michael Yakubov** NJ B '22  
**Stabile No. 948** |Electrical eng'g

**Joshua Yang** AL E '23  
**Momoh No. 1** |Elec & Comp eng'g

**Makenna R. Yergler** IL E '21  
**Stabile No. 941** |Electrical eng'g

**Anna Y. Yue** GA A '22  
**Record No. 1750** |Computer eng'g

**Wojciech Zacherek** IN B '22  
**Stabile No. 916** |Computer eng'g

**Yihua Zhang** NY Δ '22  
**Stabile No. 915** |Operations Research



## THE PERFECT FIT.

Outstanding service and special savings.

**GEICO** | MEMBER DISCOUNT

[geico.com/stu/tbp](http://geico.com/stu/tbp) | 1-800-368-2734 | Local Agent

Some discounts, coverages, payment plans, and features are not available in all states, in all GEICO companies, or in all situations. GEICO contracts with various membership entities and other organizations, but these entities do not underwrite the offered insurance products. Discount amount varies in some states. One group discount applicable per policy. Coverage is individual. In New York a premium reduction may be available. GEICO may not be involved in a formal relationship with each organization; however, you still may qualify for a special discount based on your membership, employment or affiliation with those organizations. The GEICO Mobile app and site received #1 rankings according to the Dynatrace Q1 and Q3 2019 Mobile Insurance Scorecards. Customer satisfaction based on an independent study conducted by Alan Newman Research, 2020. GEICO is a registered service mark of Government Employees Insurance Company, Washington, DC 20076; a Berkshire Hathaway Inc. subsidiary. © 2021 GEICO 21\_734955833

# BRAIN TICKLERS



## Results From Spring

### Perfect Scores

*Berthold, Kristopher D.	TX	B	'04
Coleman, Benjamin J.	NH	B	'20
Couillard, J. Gregory	IL	A	'89
Fleischer, Bruce	Father of member		
Johnson, Mark C.	IL	A	'00
Rowe, Steven A.	ME	A	'81
Barr, David A.	Non-member		
*Slegel, Timothy J.	PA	A	'80
*Spong, Robert N.	UT	A	'58
Sylvester, Noah	Son of member		

### Other

Aron, Gert	IA	B	'58
Bannister, Kenneth A.	PA	B	'82
Bohdan, Timothy E.	IN	I	'85
Dechman, Don A.	TX	A	'57
*Griggs Jr., James L.	OH	A	'56
*Holcomb, J. Eric	OH	A	'82
Johnson, Roger W.	MN	A	'79
Kimsey, David B.	AL	A	'71
Kovalick, Albert W.	CA	H	'72
Kraska, Don H.	MI	I	'63
Lalinsky, Mark A.	MI	I	'77
Munsil, Wesley E.	CA	B	'71
*Norris, Thomas G.	OK	A	'56
Norris Jr., Thomas G.	PA	I	'79
Parks, Christopher J.	NY	I	'82
Scott, Darrell J.	NC	A	'82
Silver, Robert E.	NY	P	'80
Spring, Gary S.	MA	Z	'82
Summerfield, Steven L.	MO	I	'85
*Voellinger, Edward J.	Non-member		
Wallace, Jean E.	IA	A	'81
Zison, Stanley W.	CA	Θ	'83

\*Denotes correct bonus solution

## Spring Review

Readers did very well on the Spring puzzles. One hundred percent of the submitted answers to Question 1 (the base 9 cryptarithm) were correct. Between 60 and 90 percent of the submitted answers to the remaining questions were correct.

The Double Bonus was something of an experiment. When this question was used in the Winter 1979 issue, 0 / 154 respondents submitted a correct answer. The judges were curious to see if results would be different in this age of ready access to computers. For the Spring 2021 issue, 3 / 30 respondents submitted a correct solution.

## Summer Answers

**1:**  $w = 6$ . Six wrongs do not make a right. There are 21 answers for  $w = 2$ , for example WRONG = 12,734 and RIGHT = 25,468. Four answers for  $w = 3$ , including WRONG = 13,082 and RIGHT = 39,246. Four answers  $w = 4$ , such as WRONG = 16,093 and RIGHT = 64,372. Five answers for  $w = 5$  is one possibility, WRONG = 19,452 and RIGHT = 97,260. But, there are zero answers for  $w = 6$ .

**2:** The pairings are: **N1-D2, N2-D3, N3-D1**, for a winning probability  $P = 31 / 60 \approx 0.5167$ . Each team has exactly three players, so the Nets captain has  $3! = 6$  options for pairing sets. Since the two teams are equally strong, any strategy that matches two equally ranked individuals will result in  $P = .5$  as the Nets advantage in one unequal pair is precisely offset by a disadvantage in the other. Therefore, one only needs to consider the two pairing sets that have three unequal pairs.

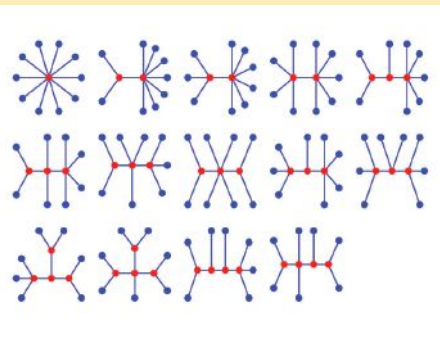
With the N1-D2, N2-D3, N3-D1 pairing set, the probability that (N1, N2, N3) are all winners is  $1/10$ , (N1, N2, D1) is  $3/10$ , (N1, D3, N3) is  $1/15$ , and (D2, N2, N3) is  $1/20$ . The probability of winning the tournament  $P = 1/10 + 3/10 + 1/15 + 1/20 = 31/60$ .

Conversely, with the N1-D3, N2-D1, N3-D2 pairing set, the probability of winning the tournament  $P = 1/10 + 1/5 + 3/20 + 1/30 = 29/60$ .

If the teams were to carry more players, one could use a similar strategy to compute the probabilities, although a program or spreadsheet would make the task more manageable. If there were five on each team: N1-D2, N2-D3, N3-D4, N4-D5, N5-D1 is the best strategy for  $P = 601 / 1,134 \approx 0.5300$ .

Surprisingly, seven players does not follow the pattern: N1-D3, N2-D4, N3-D5, N4-D6, N5-D7, N6-D2, N7-D1.  $P = 16,601 / 30,720 \approx .5404$ .

**3:** There are **14** trees with 11 vertices. Of the 14 trees, there are a maximum of **4** non-leaf vertices. In the movie, Will Hunting drew only 8 of 10 graphs with exactly 10 vertices. Despite the drama, this problem is not nearly as hard as cinema presents. We asked for unique (aka non-isomorphic) trees (that is, a graph with no cycles) that are irreducible (that is, no vertex has exactly two edges). Below is a diagram of the 14 trees. Of the 14 trees, 4 had exactly 4 non-leaf vertices (the bottom row).



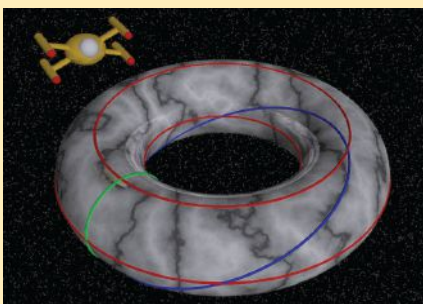
**4:** For  $x=20$  and  $y=43$ , the largest order that cannot be filled is **797**; the general form is  $xy - (x + y)$ . Traditionally known as the *Frobenius Coin* problem, and now sometimes referred to as the *Chicken McNugget* problem, this Ticker concerns the case where there are exactly two box sizes. Using trial and error, it is relatively easy to figure out the specific answer for  $x=20$  and  $y=43$ . A rigorous proof of the general form is too long for this column.

**5: 110 km.** Let  $R$  be the major radius of the torus, that is, the distance from the center of the torus to the center of the encircling tube. Let  $r$  be the minor radius of the

torus, that is, the radius of the tube. Of course,  $R > r$ . A circular channel can be formed in one of three ways:

1. By the intersection of the torus with a plane parallel to equatorial plane of torus; such circles have a radius  $q$  such that  $R - r \leq q \leq R + r$ ; for example, the red circles in the diagram
2. By the intersection of the torus with a plane perpendicular to the equatorial plane of the torus; such circles have a radius  $q = r$ ; for example, the green circle in the diagram
3. By the intersection of the torus with a plane at an angle  $\sin(r/R)$  to the equatorial plane passing through the center; these so called Villarceau circles have a radius  $q = R$ ; for example, the blue circle in the diagram

Multiple circles of red type 1 do not intersect, nor do multiple circles of green type 2. However, every type 1 circle must intersect with every circle of type 2 and 3.



Hannah and Jack's circles are different lengths, but do not intersect, so they must be red type 1. Dana and Ron's circles intersect Jack's, so they must be types 2 and 3, but it is not immediately clear which is which. We can calculate  $q_{\text{dana}} = 50/2\pi$ , and  $q_{\text{ron}} = 60/2\pi$ . Since  $R > r$ , the longer  $q_{\text{ron}} = 60/2\pi = R$  (blue type 3), and the shorter  $q_{\text{dana}} = 50/2\pi = r$  (green type 2). Sarah's channel is the longest possible, so has the maximal radius (red type 1)  $R + r = 60/2\pi + 50/2\pi = 110/2\pi$ . Sarah's channel has length 110 km.

### BONUS: WISE.

For purposes of this answer, define italics as being the sum of the provided digits, e.g.  $ONE = O + N + E$ .

Observe that given the pairs *FOUR* / *FOURTEEN*, *SIX* / *SIXTEEN*, *SEVEN* / *SEVENTEEN* and *NINE* / *NINETEEN*, **TEEN must be 10**. If not, at least four of the sums must be wrong, and we know that at most one is.

Knowing that *TEEN* = 10, then *TEN* = 10 if and only (iff)  $E = 0$ . That is,  $E \neq 0$  if *TEN* is wrong.

Considering *EIGHT* and *EIGHTEEN*, both *EIGHT* = 8 and *EIGHTEEN* = 18 iff  $T = 0$ . That is, if one of the two is wrong,  $T \neq 0$ .

Similarly, considering *THREE* and *THIRTEEN*, both *THREE* = 3 and *THIRTEEN* = 13 iff  $I = 2E$ . That is, if one of the two is wrong,  $I \neq 2E$ .

Suppose all five are correct: *TEN* = 10, *EIGHT* = 8, *EIGHTEEN* = 18, *THREE* = 3, and *THIRTEEN* = 13. Then  $E = T = I = 0$ . Then *TEN* =  $N = 10$ . And *NINE* =  $2N = 9$ ,  $N = 4.5$ .  $N$  can't be both 10 and 4.5, so **exactly one of *TEN*, *EIGHT*, *EIGHTEEN*, *THREE*, and *THIRTEEN* is the incorrect sum and all the other sums are correct**.

Suppose *TEN* is the incorrect sum;  $TEN \neq 10$ .  $T = 0$ ,  $E \neq 0$ ,  $I = 2E$ . From *TEEN* = 10, *EEN* = 10, and *IN* = 10. Given *NINE* = 9,  $NE = -1$ , so  $E = 11$ ,  $I = 22$ , and  $N = -12$ . *ONE* = 1, so  $O = 2$ . *TWO* = 2, so  $W = 0$ . *FIFTEEN* = 15, so  $F = -8.5$ . *FIVE* = 5, so  $V = -19.5$ . *SEVEN* = 7, so  $S = 16.5$ . *SIX* = 6, so  $X = -32.5$ . *ELEVEN* = 11, so  $L = 9.5$ . Checking *TWELVE* =  $ELVE = 12$ . *TWENTY* = 20, so  $Y = 21$ . At this point,  $G, H, R$ , and  $U$  are undetermined. From *FOUR* = 4, we get  $UR = 10.5$ . *EIGHT* = 8, so  $GH = -25$ . *THREE* = 3, so  $HR = -19$ . Combining  $UR = 10.5$ ,  $GH = -25$ , and  $HR = -19$ , there is no way to get any more than one of  $G, H, R$ , or  $U$  to be zero. Since we have no more than three letters equal to zero, we conclude both ***TEN* = 10 and *E* = 0**.

Suppose one of *THREE* or *THIRTEEN* is an incorrect sum.  $T = 0$ ,  $E = 0$ ,  $I \neq 2E$ . *TEN* = 10, so  $N = 10$ . *NINE* = 9, so  $I = -11$ . *ONE* = 1, so  $O = -9$ . *TWO* = 2, so  $W = 11$ . *TWENTY* = 20, so  $Y = -1$ . *FIFTEEN* = 15, so  $F = 8$ . *FIVE* = 5, so  $V = 8$ . *SEVEN* = 7, so  $S = -11$ . *SIX* = 6, so  $X = 28$ . *ELEVEN* = 11, so  $L = -7$ . Checking *TWELVE* =  $WLV =$

12. At this point,  $G, H, R$ , and  $U$  are undetermined. From *FOUR* = 4, we get  $UR = 5$ . *EIGHT* = 8, so  $GH = 19$ . If *THREE* = 3 then  $HR = 3$ , or if *THIRTEEN* = 13, then  $HR = 14$ . Combining  $UR = 5$ ,  $GH = 19$ , and one of the  $HR$  equations, there is no way to get any more than one of  $G, H, R$ , or  $U$  to be zero. Since in this case we only have at most three letters equal to zero, we conclude both ***THREE* = 3 and *THIRTEEN* = 13**.

Finally, consider the possibility that one of *EIGHT* or *EIGHTEEN* is an incorrect sum.  $T \neq 0$ ,  $E = 0$ ,  $I = 2E = 0$ . *NINE* = 9, so  $N = 4.5$ . *TEN* = 10, so  $T = 5.5$ . *ONE* = 1, so  $O = -3.5$ . *TWO* = 2, so  $W = 0$ . *TWENTY* = 20, so  $Y = 4.5$ . *FIFTEEN* = 15, so  $F = 2.5$ . *FIVE* = 5, so  $V = 2.5$ . *SEVEN* = 7, so  $S = 0$ . *SIX* = 6, so  $X = 6$ . *ELEVEN* = 11, so  $L = 4$ . Checking *TWELVE* =  $TLV = 12$ . At this point,  $G, H, R$ , and  $U$  are undetermined. From *FOUR* = 4, we get  $UR = 5$ . *THREE* = 3, so  $HR = -2.5$ . If *EIGHT* = 8 then  $GH = 2.5$ , or if *EIGHTEEN* = 18, then  $GH = 8$ . Combining  $UR = 5$ ,  $HR = -2.5$ , and one of the  $GH$  equations, we can select  $G, H, R$ , or  $U$  such that none are zero.

We have exactly four zeroes,  $E, I, W$ , and  $S$ , which can be formed to make the word *WISE*.

In summary,  $E = I = W = S = 0$ ,  $N = 4.5$ ,  $T = 5.5$ ,  $O = -3.5$ ,  $Y = 4.5$ ,  $F = 2.5$ ,  $V = 2.5$ ,  $X = 6$ , and  $L = 4$ . *EIGHT* or *EIGHTEEN* is the incorrect sum. Either  $GH = 8$  or  $GH = 2.5$ .  $UR = 5$  and  $HR = -2.5$  and we can select  $G, H, R$ , or  $U$  such that none are zero.

### COMPUTER BONUS:

The elder died at age **122**. The seven stones weigh **1, 3, 7, 12, 43, 76, and 102**.

For comparison, if there were only six stones, our program found the elder's age to be 84 and the six weights are 1, 3, 17, 22, 51, 61. Five stones: age 49, weights 1, 3, 7, 12, 36. Four stones: age 26, weights 1, 2, 6, 18. Three stones: age 13, weights 1, 3, 9.

### New Fall Problems

Continued on page 47



# ZOMBIE PATENTS

by David B. Newman Jr., Ph.D., Esq.  
Rhode Island Beta '70

## INTRODUCTION

American intellectual property laws have significantly changed how patent litigation is conducted in the United States. Engineers, businessmen, and businesswomen need to know that patent litigation is not limited to the courtrooms, but in part, is also conducted in the U.S. Patent and Trademark Office (USPTO). Patents in a patent litigation in U.S. District Court can end up before the USPTO and held invalid and never have their day in court. A patent held invalid before an inter partes review in the USPTO is referred to as a zombie patent. Based on the Patent Office administrative patent judges, the inter partes review has been holding patents invalid that previously went to a lay jury.

## AMERICA INVENTS ACT

The Leahy-Smith America Invents Act of 2011 (AIA) instituted a procedure under 35 U.S.C. § 311 through 35 U.S.C. § 319, "Inter Partes Review," for contesting the validity of patents. The effective date of the AIA was September 16, 2012, and it applies to all patents issued before, on, or after that date. The inter partes review is conducted in the USPTO by the Patent Trial and Appeal Board. The inter partes review is a trial before the Patent Trial and Appeal Board and as such, is litigation focused on the patent validity issues on novelty under 35 U.S.C. § 102 and obviousness under 35 U.S.C. § 103.

In comparison, in the U.S. District Court the issues in a trial would not be limited to patent validity, but would include all issues, such as patent infringement and damages. As shown in **Figure 1**, a jury is used in the U.S. District Court, but a judge is an alternative option. In an inter partes review before the Patent Trial

and Appeal Board, there is no jury or judge. Instead, administrative patent judges who are lawyers with technical degrees serve as the judge and finders of fact, as shown in **Figure 2**. They have technical degrees in electrical engineering, physics, chemistry, and other disciplines in engineering and science. Examiners examine patent applications to determine whether they are worthy to issue as a U.S. patent.

A petitioner institutes an inter partes review by filing a petition with the Patent Trial and Appeal Board. With the petition, the petitioner presents evidence that challenges the validity of the patent at issue. Evidence typically includes prior patents, prior published literature, and publications. The patents, literature, and publications can come from any country. If they are in a foreign language, an English translation is required.

## PREPAID WIRELESS CELLULAR TELEPHONE CASE

Prior to the AIA, all patent issues were by trial in U.S. District Court. By way of example, in Boston, MA, 2005, Freedom Wireless went to trial against Boston Communications Group for infringing two patents on prepaid wireless cellular telephones. Infringement is “whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefore, infringes the patent.” 35 U.S.C. § 271.

The trial lasted five months. They tried the case before a non-technical jury, which held both patents valid and infringed. The jury award was approximately \$128 million. A year later, attorney fees were awarded for approximately \$35 million. The AIA did not exist back then, but came seven years later. So the jury decision was final, subject to an optional appeal to the Court of Appeals for the Federal Circuit. The case was not appealed. Had the AIA existed, an inter partes review might have had a different result.

## TIMING

In an inter partes review, or U.S. District Court, expert witnesses can supply opinions by the way of affidavits. Depositions can be taken of the expert witnesses furnishing an opinion. Thus, not only is there discovery between parties, but there also can be a hearing before a three judge panel.

Timing becomes very important from the day the petitioner files the petition. Within six months the Patent Trial and Appeal Board must institute the inter partes review and trial, and conduct the trial within 12 months, but it can take 18 months in exceptional circumstances. Thus, the Patent Trial and Appeal Board can have the case for up to two years. A decision from the Patent Trial and Appeal Board can be appealed to the Court of Appeals for the Federal Circuit, which can take another two years.

The inter partes review can be conducted on its own, without a patent lawsuit concurrently filed in a U.S. District Court. But what happens if a patent lawsuit is filed in a U.S. District Court on the same patent pending

in an inter partes review? Assume, in the patent lawsuit that the patent holder is the plaintiff and that the business making the product is the defendant. The plaintiff sues the defendant for patent infringement. The business making the product (the defendant) can still institute, as a petitioner, an inter partes review of the patent in the Patent Trial and Appeal Board. The defendant then would approach the judge in the patent lawsuit in the U.S. District Court to stay the litigation until the outcome of the inter partes review is final. The U.S. District Court judge has a lot of latitude and most likely would grant the stay. After all, if the matter in the inter partes review holds the patent invalid and the plaintiff does not appeal or loses on appeal, then the contest between the plaintiff and defendant in the U.S. District Court ends.

Thus, possible outcomes from the Patent Trial and Appeal Board are that the patent or patents are valid or are invalid. Another possibility is that the plaintiff and defendant settle their case.

Figure 1

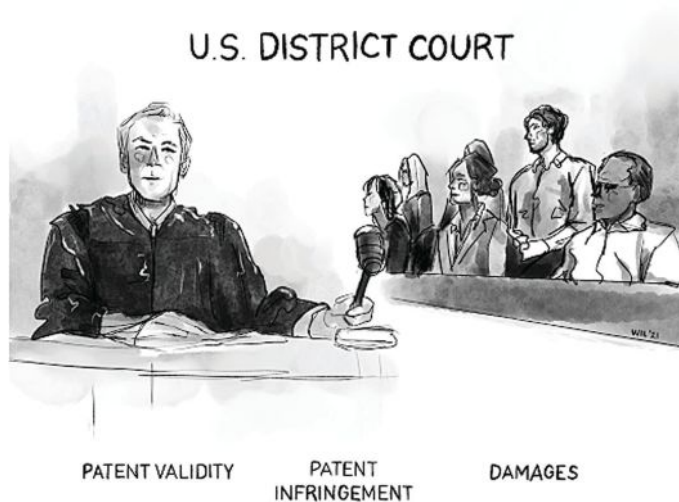


Figure 2



Image Credit: Wilhelmina Hill-Bearhs

## “PATENTS THAT WERE ISSUED WITH THE PRESUMPTION OF VALIDITY AND FAIL IN AN INTER PARTES REVIEW ARE THE WALKING DEAD AMONG PATENTS — THE ZOMBIE PATENTS.”

Assuming the patent in issue is valid at the Patent Trial and Appeal Board, then the case, if not settled, goes to trial in the U.S. District Court.

### PRESUMPTION OF VALIDITY

Let us briefly review the process for obtaining a U.S. patent.

When an inventor applies for a patent, the inventor submits to the USPTO a patent application, typically drafted by a patent attorney. The patent application discloses the overall invention with claims defining the specifics of the invention. An examiner reviews the patent application for patentability, among other requirements, to determine whether it is worthy to issue a U.S. patent. Typically the examiners hold B.S., M.S., or even Ph.D. degrees in their field of technical expertise.

The examiner often challenges in an office action the patentability of the claims of the invention disclosed in the patent application by citing prior art, i.e. references, relevant to the patent application. The inventor, through the patent attorney, responds to the examiner's challenge. Usually a response is submitted as an amendment to the claims in the patent application. This response is to overcome the examiner's challenge. If the patent attorney is successful, then the examiner allows the patent application to issue as a patent.

An issued patent from the USPTO is presumed to be valid. The presumption of validity is what the petitioner in the inter partes review is attempting to overcome in the Patent Trial and Appeal Board. The petitioner usually challenges with newly found prior art and references that were not considered by the original examiner.

What does this have to do with zombie patents, you might ask? Patents that were issued with the presumption of validity and fail in an inter partes review are the walking dead among patents, the zombie patents.

### 5G CELLULAR TELEPHONE CASE

Let's look at several situations where zombie patents might appear and the impact they may have on the litigation in a U.S. District Court. The first situation involves two large multi-million dollar corporations, one a plaintiff and the other a defendant, both manufacturing products in the 5G telecommunications field.

In the first situation, both corporations have a budget for patent litigation. The hypothetical patents cover 5G cellular telephones. Thus, they are fighting over market share. A lawsuit is filed in a U.S. District Court by the first multi-million dollar corporation, the plaintiff. The second multi-million dollar corporation, the defendant, responds to the lawsuit denying infringement and asserting that the

patent is invalid. The second multi-million dollar corporation, as a petitioner, files a petition in the Patent Trial and Appeal Board with a Significant New Question (SNQ) attacking the validity of the plaintiff's patent. The patent holder files a response to the petition. The patent and responses are reviewed and if the administrative patent judge at the inter partes review finds the petition valid, then the patent is held invalid, a zombie patent. If, however, the patent holder wins at the inter partes review, then the patent lawsuit may proceed. The petitioner, however, can file a new SNQ, stopping the litigation and the process is repeated. The petitioner can repeat the process ad infinitum!

The defendant (petitioner) petitions the judge in the U.S. District Court to stay the litigation, pending outcome of the inter partes review before the Patent Trial and Appeal Board. The plaintiff files a response. An estimated cost of the inter partes review may be a lot less than a full-fledged trial in U.S. District Court. If the defendant (petitioner) wins the inter partes review, then he exposes the plaintiff's patents among the walking dead—zombie patents. This assumes the plaintiff loses upon appeal or does not appeal. The savings in terms of litigation fees may be less for the inter partes review than the litigation in the U.S. District Court.

If the defendant does not win the inter partes review and if both corporations have patents in the same technology in the 5G telecommunications field, then they may go to trial or settle the case by cross licensing their patents.

The second situation involves a multi-million dollar corporation (defendant) manufacturing a product in the 5G telecommunications field. The defendant is being sued by one, or two, or more inventors using a corporation, as in *Linex Technologies v. Hewlett Packard, Apple, et al.* Linex Technologies has a robust patent portfolio in the 5G telecommunications field. The Linex Technologies is represented by a law firm on a contingency fee basis.

In the second case, the defendants, Hewlett Packard, Apple, et al., have a budget for responding to patent infringement claims against them. Linex Technologies has a limited budget for litigation. So, either the contingency fee law firm advances the necessary out of pocket fees, or Linex Technologies, through its shareholders, advances the necessary out of pocket fees, to pursue the inter partes review in the USPTO and litigation in the U.S. District Court. Their lawsuit does not concern market share, but generating revenue from patent infringement. Linex Technologies loses at the inter partes review and did not go to the Court of Appeals for the Federal Circuit. Their patents in suit ended up as

zombie patents.

Consider VirnetX, a publicly traded company with a robust patent portfolio in security software and technology. Since it is publicly traded, it has resources for conducting patent litigation. Revenue is generated from licensing its patents. VirnetX sued Apple for patent infringement.

There were multiple lawsuits between Apple and VernetX. Apple also challenged VernetX's patents in an inter partes review. VernetX survived the inter partes review with its patents and won patent litigations against Apple. In the end, Apple paid VernetX \$502.8 million in 2021. The VernetX case shows that inter partes review does not necessarily make zombies of patents brought before it. Not all patents end up as zombie patents.

## CONCLUSION

When a patent case goes to trial in a U.S. District Court, a lay jury not experienced in applying patent law and reviewing technical evidence will be deciding the outcome of the case. The Patent Trial and Appeal Board, on the other hand, has administrative patent judges who have technical expertise in patent law and are experienced in applying patent law with respect to technical evidence in the case. These professionals are more likely to "get it correct" in their decision on the validity issue, than the lay jury. At least 28 administrative patent judges serve on

the Patent Trial and Appeal Board. Over 2,000 zombie patents have been declared completely or partially invalid, thus, it is very risky to bring zombie patents before the Patent Trial and Appeal Board, and redeeming for valid patents.



**DAVID B. NEWMAN** received his Ph.D. (1974) in electrical engineering from the Pennsylvania State University and his J.D. (1983) from the Washington College of Law, American University. He is a former associate professor of electrical engineering at George Washington University and previously an engineer with the CIA. He currently is a patent attorney in the Washington, DC, metropolitan area. Dr. Newman is a member of TBIT and Phi Kappa Phi honor societies and a Life Senior Member of IEEE. He can be reached at [dnewman@primary.net](mailto:dnewman@primary.net)



## We need YOU, to write for *The Bent*

The Editors of *The Bent* are frequently searching for well-written, general interest feature articles for the magazine. Many of you have the appropriate experience, are qualified, and capable of preparing such a feature.

Manuscripts can be between 1,000-3,000 words, and should be double-spaced and submitted as a text or MS Word document. Publishing decisions cannot be guaranteed.

Email your proposal to [media@tbp.org](mailto:media@tbp.org).

# IN THE COLLEGES

Tau Bates having an impact at institutions of higher learning.

## Blair K. Brettmann Ph.D.

*Texas Alpha '07*

Blair is the recipient of a 2020 Faculty Early Career Development (CAREER) Award from the National Science Foundation. She is an assistant professor at Georgia Tech with a research program seeking to understand how to design formulations and molecular interactions between materials to predictably control manufacturing properties of polymer-containing products.



## Ricky T. Castles Ph.D.

*Virginia Beta '03*

Ricky was selected by the UNC Board of Governors as recipient of the Excellence in Teaching Award. He is an associate professor of engineering at East Carolina University and NC Zeta Chapter Chief Advisor. He was recognized for "connecting with students on a personal level and putting his work to use in the community." His degrees are in computer eng'g.



## Marzyeh Ghassemi Ph.D.

*New Mexico Alpha '05*

Marzyeh has joined the MIT Institute for Medical Engineering and Science and the department of electrical engineering and computer science as an assistant professor. Previously, she was an assistant professor at the University of Toronto. Her research focuses on creating and applying machine learning to human health improvement. Her B.S. degree is from NMSU.



**SPOTLIGHT: Alumnus from University of Arizona Endows New Chair—** In honor of his father and his alma mater, **Dylan E. Taylor, AZ A '93**, and his wife, Gabrielle, are making a \$1 million gift to create the Patrick R. Taylor Endowed Department Leadership Chair in materials science and engineering at the University of Arizona. Dylan is a global business leader and philanthropist. He serves as Chairman & CEO of Voyager Space Holdings, a multi-national space holding firm that acquires and integrates leading space exploration enterprises. His father, Patrick R. Taylor, Ph.D., P.E., enjoyed an illustrious career in mining and materials engineering and is a Distinguished Professor at the Colorado School of Mines.

**Two Iowa State Faculty Members Selected for Prestigious Fellows Program—** The Jefferson Science Fellows Program allows participants to spend one year on assignment at the U.S. Agency for International Development (USAID) contributing their engineering expertise to USAID projects. **Ramesh S. Kanwar, Ph.D., IA A '69**, is a Distinguished Professor in the agriculture and biosystems engineering department and **Richard A. LeSar, Ph.D., IA A '75**, is a professor of materials science. Dr. Kanwar plans to work with USAID on the Environmental Team in the Bureau of Late America and the Caribbean, Office of Regional Sustainable Development. Dr. LeSar will work with USAID at the Center for Education.

## Mark A. Golkowski Ph.D.

*New York Delta '02*

Mark was named Associate Dean for Education and Student Success for the University of Colorado at Denver College of Engineering. He joined CU Denver in 2010, is a professor of electrical engineering, and recently led the faculty committee that redesigned the core undergraduate EE curriculum. Mark also serves as a CO Epsilon Chapter advisor (since 2012).



## Walter F. Jones Ph.D.

*South Carolina Alpha '78*

Walter was appointed as chancellor and director of the Air Force Institute of Technology. Previously, he served as executive director of the Rice University National Security Research Accelerator and as executive director of the Office of Naval Research. His engineering degrees are from Clemson University, with a Ph.D. in engineering mechanics.



## Robert S. Keynton Ph.D.

*Ohio Kappa '93*

Robert has been named dean of engineering at the University of North Carolina at Charlotte. He spent 21 years at the University of Louisville, most recently as Interim Executive VP for Research & Innovation, and as chair, he led the creation of the department of bioengineering at UofL. His areas of expertise include BioMEMs, cardiovascular mechanics, and fluid mechanics.



## Jelena Notaros Ph.D.

*Colorado Beta '15*

Jelena joined the MIT department of electrical engineering & computer science as an assistant professor, principal investigator in the Research Laboratory of Electronics, and core faculty member of the Microsystems Technology Labs. Her research interests are in integrated silicon photonics devices and systems, with an emphasis on integrated optical phased arrays for lidar.



## Elizabeth J. Orwin Ph.D.

*California Omega '95*

Elizabeth has been named dean of the School of Engineering and Computer Science at the University of the Pacific. A biomedical engineer, she previously served as engineering department chair at Harvey Mudd College, and was an American Council on Education fellow. Her industry experience includes R&D of a novel protein matrix for wound-healing applications.



## Sanjay Raman Ph.D.

*Georgia Alpha '87*

Sanjay has been selected as University of Massachusetts Amherst College of Engineering Dean. Previously, he was associate VP for the Virginia Tech national capital region, president & CEO of the VT Applied Research Corp., a program manager in the Microsystems Technology Office of DARPA, and a nuclear-trained submarine officer in the U.S. Navy.



### **FACILITIES: STEM-H education focus leads Old Dominion University to Unveil Three New Buildings**

This year, ODU opened the Hugo A. Owens House, a residential facility to house 470 students, including many majoring in STEM-H disciplines. The advanced facility has a living-learning community for cybersecurity, gaming, health professions, and engineering students. In addition, the 110,000-square-foot chemistry building was dedicated in April allowing ODU to expand its chemistry and biochemistry programs and conduct more advanced research. Finally, the Health Sciences Building is scheduled to open in the summer of 2023 and will become a focal point of health care for thousands of local residents.

### **Engineering Research Building Opens at Virginia Commonwealth University**

In February, VCU opened its Engineering Research Building, a milestone in the college's growth in research and workforce development programs. The four-story, 133,000-square-foot facility "significantly expands the college's laboratory capacity for advanced research. It also supports economic development initiatives and hands-on engineering education." The building connects the VCU Engineering's East Hall and the School of Business' Snead Hall. The design also features specialized workspaces, including the Innovation Maker Facility, for hands-on prototyping, 3D printing, and bench electrical fabrication—all made possible by a major gift from Altria.

## Kenneth J. Reid Ph.D.

*Ohio Kappa '88*

Ken was named associate dean and director of the University of Indianapolis School of Engineering. He previously served as associate dept. head of undergraduate programs at Virginia Tech, and director of engineering education at Ohio Northern Univ. Ken is co-author of several books, active in K-12 eng'g research, and has a Ph.D. in engineering education from Purdue University.



## Lorenzo M. Smith Ph.D.

*Michigan Theta '91*

Lorenzo has been appointed provost and executive vice president at Stephen F. Austin State University in Nacogdoches. At California State University in Sacramento, he previously served as professor and dean of the college of engineering & computer science, authored nearly 60 publications, and secured \$7 million in external funding to support his research.



## Lesley J. Strawderman Ph.D.

*Kansas Gamma '02*

Lesley was honored as a John Grisham Master Teacher Award recipient for 2021 at Mississippi State University. She is a college of engineering professor and International Paper Chair in the department of industrial and systems engineering. The award is "a tribute to classroom and instruction excellence" and the university's most prestigious teaching award.



# Alumni Giving

**THANK YOU** to the **1,641 TAU BETA PI ALUMNI** and others who made donations to the Association totaling \$690,635 between May 1 and July 31, 2021. **Gifts received after July 31 do not appear here but will be published in the Winter 2022 issue.**

The generous support of each member is deeply appreciated by the Executive Council and Association Officials. The financial resources have permitted strengthening programs in several areas that emphasize the importance of Tau Beta Pi's basic objectives and that help all collegiate chapters and student members.

Recognition Club Donors are listed alphabetically within their chapters. Pre-Club Members/Contributors will be posted (PDF) with the full list on the TBP website at: [www.tbp.org/?AGP](http://www.tbp.org/?AGP).

Names preceded by SPEC denote gifts from non-members.

Those names marked with a † symbol are of deceased members in whose memory donations were made either by relatives and friends or through bequests.

In addition to gifts acknowledged here, several were made anonymously and are also deeply appreciated.

## Donor Recognition Clubs

The Donor Recognition Clubs are part of our effort to recognize a donor's total lifetime cumulative giving to Tau Beta Pi. Such continuous support significantly contributes to the overall strength of the Association and allows us, with confidence in our financial resources, to plan for growth in our services to the engineering profession. The names of 1,329 donors are listed here.

*These clubs were chartered by the Executive Council in 1986 and have been set at the following levels:*

### The MATTHEWS Club

**\$500,000**

IA A †Moyer, James Hardy '51

### The NAGEL Club

**\$250,000**

CA Δ Hennis, Lee Alan '65

### The WILLIAMS Club

**\$100,000**

FL Γ †Collins Jr., Bill Louis '75  
 IL A Holland Jr., Lester Marion '66  
 NJ A Forslund, Donald Charles '60  
 OR A Brandt, Larry Don '67  
 PA Z †Scheffler, Paul Henry '48

### The HEIKES Club

**\$50,000**

IA A Kilzer, David Darrell '96  
 MD B Farmer, Nick Arthur '68  
 MS A Sinclair, William Fredrick H. '63

### The ALPHA Club

**\$25,000**

CA Γ Levin, Robert Edmond '53  
 IL A Ditman, Jason Blair '91  
 IN A Newcomb, Robert Wayne '55  
 MI A LaFrey, Raymond Richard '61  
 NY B Anonymous '80  
 OH Δ Robe, Richard '55  
 PA ⊕ Hennessy III, John L. '73  
 SD A Gomulinski, Tricia E. '98  
 TX Δ Fox, Craig Alan '77

### The BETA Club

**\$10,000**

SPEC Anonymous '00  
 CA Γ Davies III, Paul Lewis '83  
 DE A Sharp III, Rodney '60  
 IL Γ Gross, Richard Charles '80  
 LA E Champagne Jr., Pierre '76  
 MA Δ Lee, Dick G. '51

MI A Colbry, Dirk J. '06  
 Colbry, Katy Luchini '99  
 MI E Gomulinski, Curt Dennis '01  
 NY Δ Angle, Fritz F. '82  
 OH A Salamon Jr., Peter Francis '71  
 RI A Vigar, Judith Wells '83  
 SC A Harman, Patrick '65  
 TN A Cook, James Michael '72  
 TX A Mickelson, Kent Burdell '77  
 TX Δ Sisney, Steven Lynn '83  
 VA B Friar, Billy Wade '58  
 WA A Asplin, Lyle Irving '59  
 Eastman, James Scoville '53

### The DELTA Club

**\$5,000**

CA B Drowley, Clifford Ian '75  
 Shombert, Lee Alan '79  
 CA Δ Crews, Brian '70  
 Hall, Victoria Lee '86  
 Holt, Sue '76  
 CA M Sciacca, Joan Michelle '87  
 CA N Erickson, Ralph Edward '71  
 Joy Jr., Robert Lee '66  
 CA Y Mukhar, Marwan John '93  
 CO B Clair, David Richard '58  
 DC B Walsh, Bryan Patrick '97  
 FL A Lewis, Becky Ann '04  
 FL E Cowan Jr., David James '14  
 LA B Vaughan, Robin Marie '81  
 MA A Bujaucius, Jerry Alan '79  
 Chace, Brian David '69  
 MA B Poduska Sr., John William '59  
 MA Δ Peterson, John William '53  
 MA Z Grzeslak, Kazimierz T. '88  
 MA H Garriques, Ronald Gene C '86  
 MI Γ Holderness, James Henry '67  
 MI H Horltdt, Henry Bessemer '47  
 MT A Carlson, Gene Stewart '64  
 NE A Walcott, Gwen Sharyn '82  
 NH A Dyciewicz, Vickie Sue '96  
 NJ B Boysen, Robert Lorenz '63  
 NY Δ Hart, Marjorie Leigh '51  
 Nelson, Arnold Stanley '50  
 NY E Grosso, John Joseph '69  
 NY H Buttermann, Heidi Carol '79  
 OH A Rasbold, James Charles '83  
 OH Γ Riedel, Kimberly Sue '90  
 OH Δ Penko, Paul Frank '67  
 PA A Brunner, Thomas Morris '63



Nagel Club  
**Lee A. Hennis**  
 CA Δ '65

*Now retired, I hope to continue supporting our best and brightest through endowing a TBI Fellowship.*



Williams Club  
 †**William L. Collins Jr.**  
 FL Γ '75

*Tau Beta Pi Distinguished Alumnus, 2018.*

*Delta Club continued*

- PA B Hertneky, John A. '79
- PA K De Burlo Jr., Comegys R. '47
- TN A Stiles, Larry '71
- Trundle, Max Don '72
- TN Δ Stewart, John Dale '78
- TX A Tran, Tan Dai '87
- TX Γ Capshaw, David M. '80
- Jordan, Paul Joseph '90
- UT A Sadauskas, Leonard '66
- VA A Orphan, Victor John '62
- Powell, Joseph Broun '78
- VA B Carpenter, Joseph Andrew '63
- WA A Pierce, Russ W. '70
- WV B Ashman, Michael D. '84

The ZETA Club

**\$2,500**

- AL A Wilhelm, William Jean '58
- AL B Andrzejewski, Joseph R. '90
- AL Δ Koelbl, Terry Gene '84
- Styles, Ellen S. '85
- Styles, Robert Charles '76
- AZ A Soukup, David Joseph '76
- AZ B Barnett, J. Matthew '90
- AR A Newtown Jr., Glenford A. '69
- CA A Crooks, Lawrence E. '71
- Hoe, Albert '92
- Keith, Edward James '61
- CA B Hammer, David A. '64
- CA Γ Hillier, Frederick Stanton '58
- CA E Gaunt, Arnold John '86
- McCandless, Roger James '65
- Simsarian, Gregory Garabed '82
- Warner Jr., John Hilliard '63
- CA Z Pham, Alexander Hung Nhut '88
- CA Θ Anonymous '84
- CA K Scanlan, Lawrence Allen '68
- CA N Chew, James S B '84
- CA P Andersen, Eric Kenneth '79
- Kraft, Lyle David '87
- CA Y Alexander, Joseph W. '06
- Alexander, Rachel Kristin '15
- Pearson, Larry '64
- CO Γ Terry, Elene Sharon '01
- CT A Leib, David Bernard '61
- CT B King, David Alan '68
- DC B Passman, Alan Joseph '06
- FL A Lyons Jr., Thomas Francis '76
- FL Γ Nugent, James Charles '95
- FL Δ Robertson, John Allen '65
- IL B Lewis, Ted Howard '68
- IL E McElrath, Pamela S. '92
- IN A Bodemuller, Robert Alan '70
- Ginter, James Lee '67
- IN Γ Poore, Michael Francis '71
- Zupcic, Anthony Mario '70
- IA B Schwarting, Eugene R. '63
- KY A Davis Jr., Lewis Berkley '66
- LA Δ Lejeune, James Joseph '73
- ME A Bragdon, Reginald G. '93
- MD B Joseph, John Hamilton '85
- Loger, Jaan Alvin '63
- MA B Bardow, Alexander K. '80
- Nobel, Sanford Millard '58
- MA E Moore, Timothy Eugene '71
- MA Z Kelly, Thomas William '80
- MA H Duda, James A. '84
- MI A Chiti, James D. '71

- MI Γ Frederick, Frank Thomas '71
- Holmes, John William '65
- Johnson, Kalin Shaw '46
- Liepa, Mark Albert '81
- Sarns, Richard Norman '76
- Stewart, Steve Russell '66
- MI Δ Eberl, Edward George '74
- MI Z Jordan, Gary Lynn '73
- Pettiford, Steven Douglas '72
- MI H Czapinski, Glenn Walter '83
- Hock, Darryl Allen '81
- Obudzinski, Gary Thomas '76
- MN A Benjamin, Harrison Russell '57
- Hanson, Henry Arthur '66
- MS A Black, Howard Wayne '95
- Boozar, Drayton Daniel '66
- Sims, Joseph Hilton '63
- Fennwald, Gary Joseph '73
- MO B Steube, Milan Ray '74
- NE A Lovekin, James Warren '80
- NV A Nietling, John J. '90
- NV B Rabin, Dan E. '73
- NJ B Krumins, Aivars Edgars '75
- NJ Γ Mauermeier, Henry A. '72
- Raia, Lawrence A. '65
- Sharon, Anthony Peter '74
- Terry, Frederic Theodore '67
- Weibrecht Jr., Edwin H. '68
- Peace, Jeffrey Howard '76
- Smith, Jeffrey A. '84
- NM A Anderlik, Jeffrey David '89
- NY Γ Chamberlin, Donald Melsom '67
- Stallman, Thomas Frank '59
- NY A Kuras, John Edward '69
- Moon, Monte Lee '75
- NY N Roach, Linda J. '82
- Sisson, Albert Eugene '66
- O'Keefe, Luke Francis '80
- NY E Olenik, Anthony Michael '08
- NY T Maybee, Clarion Lee '77
- NC A Shepherd, Steven Olin '94
- OH A Gropp, William Douglas '77
- Hamilton, Joshua J. '09
- Smialek, Robert Louis '65
- OH B Pollock, Flavil Martin '77
- OH Γ Clum, James Avery '60
- Quellette, Andrew Louis '86
- OH H †Schauwecker, Harry Erich '52
- Campbell, John Joseph '76
- Sweeder, James '82
- OH K Maki, Luke Richard '78
- OH M Kovacs II, William '74
- OK A Blakeburn II, Dave Lowry '83
- OR A Milton, Stuart W. '84
- PA A Lasser, Howard Gilbert '50
- PA B Weber Jr., John Herbert '63
- Beecher, Gregory A. '78
- Marstiller, Charles Edward '74
- Moore, Albert Lloyd '56
- Smyth, John '61
- PA E Kuhn, William Lawrence '67
- PA Z Ebner, Alan Martin '61
- PA I Smith Jr., Donald Benedict '91
- PR A Blasini, Francois Rene '82
- RI A Healy, Henry Stephen '71
- RI B Luz, James J. '80
- Withrow, Gregory Lucian '80
- SC B Husband, D. Mark '83

- SD A James, Karleen Kay '86
- TN A Riggs, Donna R.H. '87
- Sansom, William B. '64
- TN B Hampton, David Rolston '85
- Skoglund, Paul Albert '89
- TX A Carroll, Billy Dan '64
- Haley, Dennis Clyde '70
- Lancaster, David Carrington '61
- Reese, Francis Edward '75
- TX B Berthold, Kristopher David '04
- Carey, Martha Derden '80
- Darby, Mark Leslie '79
- TX Γ Dobbins, James Roy '74
- Sandmann Jr., Charles W. '82
- TX Δ Ash Jr., Henry G. '59
- Cloud, Eugene Harrington '67
- Latham, Raymond Edgar '56
- Strait, William Lewis '49
- TX H Nicholson, James Eric '75
- TX Θ Stokes, F. Xavier '78
- UT A Dewey, William Alonzo '67
- VT A Kellogg, David Holt '62
- Sheldon-Dean, James P. '79
- VA A Harris, Wesley Leroy '64
- Wadsworth, Robert Manning '82
- VA B Hanley, Thomas Richard '67
- WA A MacDougall, Donald Gerrad '61
- Walker, James Rodney '55
- WV A Lengyel, Nicholas Martin '70
- Rockenstein, Richard C. '63
- WV B Dehart II, Robert Elwood '72
- WI A Haas, Brian Lee '86
- Wulff, Kurt Henry '63
- WI B Hutton, Teresa Jean '91
- Jaye, Deborah Ann '03
- WY A Davidson, Steven Lee '80

The CHI Club

**\$1,000**

- AL A Anderson, Pete Lawrence '75
- Colberg, Richard Dale '80
- Goodwin, James Joseph '58
- Henderson, Phillip Roy '62
- Miller III, Edwin H. '84
- Smith, David Buck '70
- AL B Bell III, Willis Vincent '78
- AL E Zozulin, Alexander Joseph '91
- AK A Usibelli Jr., Joseph Emil '81
- AZ A Acorn, William Raymond '71
- Chen, Daniel J. '83
- Frondorf, U. George '69
- Krisa, Kenneth Charles '82
- Park, Trevor Howard '97
- AZ B Millson Jr., Chris '63
- AR A Brady, Mark Jeffrey '83
- CA A Magyary, Andrew '65
- Mar, Wing Jong '79
- Reynolds, Barry Duane '84
- CA Γ Reneau, Leon R. '58
- Roodhouse, James Greenlee '59
- CA Δ Haririan, Vida '94
- Hedin, Richard Allen '69
- Herzberg, Donald Edward '79
- Moulton, James Ritchie '54
- Shields, Linda '84
- CA E Bremmer, David Franklin '71
- Gritton, Eugene Charles '63



# Alumni Giving



Williams Club  
**Larry D. Brandt**  
 OR A '67

*The TBP Fellowship  
 I received long ago helped  
 me to give back now.*

Chi Club continued

- |             |                                 |             |                                  |             |                                  |
|-------------|---------------------------------|-------------|----------------------------------|-------------|----------------------------------|
| <b>CA Z</b> | Lampe, Fred Paul '79            |             |                                  |             |                                  |
| <b>CA H</b> | Holstead, Raymond H. '71        |             |                                  |             |                                  |
|             | Kruusmagi, Daniel Thomas '13    |             |                                  |             |                                  |
|             | Zanini, David Victor '90        | <b>IL B</b> | Tatara, Richard Michael '78      |             |                                  |
| <b>CA Θ</b> | Hoekstra, Gerben N. '66         |             | Thompson, Marshall Ray '60       | <b>MA E</b> | Savage, Paul David '77           |
|             | Lowe, William Warren '79        |             | Anderson, Robert Francis '62     |             | McEachern, James Francis '70     |
|             | Sedlak Jr., William Lee '81     | <b>IL Γ</b> | Hartwell, Robert Aaron '81       | <b>MA Z</b> | Ridlon, Stephen Allan '66        |
|             | Slater, Eric Kent '67           |             | McBlaine, Michael Richard '75    |             | Sciartelli, Anthony Paul '86     |
| <b>CA I</b> | Lee, Neil Yun-Liu '76           |             | Asbury, Michael George '83       | <b>MA H</b> | Cooper, Perry A. '62             |
|             | Oei, Paul C. '87                |             | Henry, Thomas Peter '73          | <b>MA Θ</b> | Ewell, Kenneth Albert '68        |
| <b>CA Λ</b> | Okpiz, Alexander Edward '91     |             | Pineault, Wayne '79              | <b>MI A</b> | McKinstry, Bob C. '84            |
| <b>CA N</b> | Harmeyer, Michael Allen '90     | <b>IL E</b> | Quint, James Peter '66           |             | Burns, Nancy E. '84              |
|             | Newberry, Conrad Floyd '57      | <b>IN A</b> | Zimmerman, Jerald Robert '76     |             | Beck, Maureen E. '03             |
|             | Vandegriff, Don G. '67          |             | Sheehan, Patrick Joseph '85      |             | Beimers, Charles John '69        |
| <b>CA Ξ</b> | Baxley, Paul Alma '81           |             | Shreehan, Bruce Rogers '65       |             | Derby, Stephen George '69        |
|             | Hawkins II, John Colman '79     |             | Dries, David James Anthony '76   |             | Kupfer, Michael David '83        |
|             | Peterson, John A. '93           |             | Lane, David Girdon '71           |             | McIntosh, Carl L. '70            |
| <b>CA Σ</b> | Burke, Robert Wayne '82         |             | Middendorf, David Paul John '71  | <b>MI B</b> | Watanabe, Gerry Torao '72        |
| <b>CA T</b> | Breneman, Kenneth Philip '89    |             | Satterly, Paul Benson '82        | <b>MI Γ</b> | Glidden Jr., Harry James '65     |
| <b>CA Y</b> | Lindauer, John Arthur '90       | <b>IN B</b> | Stevenson, Burton Edward '57     |             | Altin, Mehmet '68                |
| <b>CO A</b> | Crisi, Peter Alfred '86         |             | Tveter, Steven Elliot '74        |             | Kleinau, Julie Ann '84           |
|             | Ruebush, John Charles '78       | <b>IN Γ</b> | Graham, James Henry '72          |             | Margolese, Kate '84              |
| <b>CO B</b> | Aronson, Haskell Harold '52     |             | Noblitt, Niles Leonard '73       |             | Pace Jr., George Donald '61      |
|             | Austin, Stephen Coe '74         | <b>IA A</b> | Drnevich, Raymond Francis '70    |             | Rigge, Lawrence Allen '83        |
|             | Blackwelder, Ron F. '64         |             | Silio Jr., Charles B. '65        |             | Stewart, David Mark '76          |
|             | Colonell, Joseph Michael '58    |             | Hicks, Roger Dale '57            | <b>MI Δ</b> | Williamson III, Warren Pyatt '53 |
|             | Farmer, Brian Keith '78         |             | Hoover, Gary Dean '61            |             | Di Cicco, Dominic Armand '61     |
| <b>CO Γ</b> | Lee, Don Evard '59              |             | Morse, David Sanford '52         |             | Rossi, Nicholas Michael '63      |
|             | Ton, Scott Marshall '74         |             | Owens, David Andrew '91          | <b>MI E</b> | Rutkowski, Paul John '69         |
| <b>CT A</b> | Lehman, Philip Lester '76       |             | Sellew, Roger Franklin '59       |             | Kellar, James Stephen '60        |
|             | Saubestre, Paul Andre '79       | <b>IA B</b> | Sutherland, Keith Allan '69      | <b>MI Z</b> | Moses, Michael Joseph '00        |
| <b>CT B</b> | Brenna, Patricia Mary '81       |             | Wallace, Jean Ellen '81          | <b>MI H</b> | Gomez, Lloyd E. '55              |
|             | Douglass, Michael Richard '79   |             | Dawson, Robert Jerrold '60       | <b>MI Θ</b> | Lundstrom, Richard Raye '64      |
|             | Gareau, James Peter '93         |             | Gozali, Paul '85                 | <b>MI K</b> | Spall, James Charles '79         |
|             | Hill, Dorian Evan '69           | <b>KS A</b> | McSwiggin, Thomas G. '61         | <b>MN A</b> | Sikkenga, Chad Douglas '98       |
|             | Pollitt, Julie Anne '87         |             | Hinton, Robert Allan '61         |             | Hegna, Harwood Allan '69         |
|             | Srebnick, David Lee '78         | <b>KS B</b> | Lovitch, Dinah '88               | <b>MS A</b> | Loughlin, James David '85        |
|             | Whittlesey, Richard Allen '64   | <b>KS Γ</b> | Henderson, Wesley Val '76        |             | Clements, Nathan Scott '96       |
| <b>DE A</b> | Keyser, Kevin Justin '88        | <b>KY B</b> | Erickson, Larry Eugene '60       |             | Freeman, L. Michael '71          |
| <b>DC A</b> | Long, Michael Edward '72        | <b>LA B</b> | Tyler, Larry D. '63              |             | Hatmaker Jr., John William '79   |
|             | Wimberly, Mark Oliver '77       | <b>LA Γ</b> | Marin, Justo Enrique '79         |             | Hotard, Daniel Gerard '76        |
| <b>DC B</b> | Cizler, Martin Alan '86         | <b>LA Δ</b> | Ibuado, Rachel Anne '07          |             | Steele Jr., W. Glenn '68         |
|             | Murphy, Joseph A. '60           | <b>ME A</b> | Halkiades, George '63            | <b>MS B</b> | Stephens, Jack David '83         |
| <b>DC Γ</b> | Hill, Howard Thiebaut '62       |             | Johnson, Philip Martin '55       | <b>MO A</b> | Woody, Marvin David '79          |
|             | Sonsteby, Ornuv '74             | <b>MD A</b> | Welch, Peter James '72           |             | Baker, Gerald Marion '63         |
| <b>FL A</b> | Burchfield Jr., Jack Edward '82 |             | Chan, Louis A. '84               | <b>MO B</b> | Caruthers, James Ronald '69      |
|             | Burkart, Scott Lawrence '78     |             | Hall, H. Thomas '56              |             | Benson, William Alan '77         |
|             | Edmunds, Robert C. '68          | <b>MD B</b> | Hart, Edwin Flessner '68         |             | Brockhaus, Douglas Adolph '68    |
|             | Vande Walle, Robert John '72    |             | Lang, John Charles '72           |             | Friedman, Marc Andrew '00        |
| <b>FL B</b> | Alvarez, Vicente '64            |             | Stone Jr., James William '68     |             | Hahn, Gail Louise '82            |
| <b>FL E</b> | Hansen, Christian Michael '88   |             | Ewing, R. Alan '67               |             | Hardebeck, Harry Elmer '57       |
| <b>FL Z</b> | Delaurentis, Daniel Andrew '92  |             | Kanofsky, Hal Steven '70         |             | Leitterman, Dennis W. '76        |
|             | Oppliger, Gerald T. '59         | <b>MD Γ</b> | Mentzer Jr., William Richard '61 |             | Patterson, Michael A. '77        |
| <b>FL H</b> | Baran, Thomas Vincent '93       |             | Roberts, Carla '82               | <b>MO Γ</b> | Sedovic, Pete Stephen '81        |
| <b>FL I</b> | Passarelli, Brian L. '10        | <b>MA A</b> | Wamsley, Brian Woodrow '77       |             | Unnerstall, James Anthony '56    |
| <b>GA A</b> | Brush, Gary Stoddard '80        |             | Zalesch, Steven Elliot '73       | <b>MT A</b> | Vandergriff, Leland E. '71       |
|             | Burgess, John Milton '61        |             | Quint, John H. '84               |             | Briner, Charles Dean '52         |
|             | Hirth, Roy Michael '78          | <b>MA B</b> | Fenner, Peter Richards '64       | <b>MT B</b> | Courville, George Eugene '59     |
|             | Kuniansky, Eve Louise '81       |             | Griffith, Rebecca Anne '91       | <b>NE A</b> | Erickson, Peter Benjamin '56     |
|             | Northington, Peyton A. '78      |             | Mangiarelli, Christopher A. '96  | <b>NV A</b> | Erickson, Elizabeth Jeffery '93  |
|             | Ostlick, Rochelle '83           |             | Balazs, Phillip Terry '69        | <b>NV B</b> | Hoffman, Ernest Gerhard '68      |
|             | Shurbutt, J. Steven '75         |             | Butkus, Lawrence Michael '85     | <b>NH B</b> | Van Horn, Michael David '76      |
|             | Wetenhall, Paul David '73       |             | Efimba, Bob E. '63               | <b>NJ A</b> | Nott, James '09                  |
| <b>IL A</b> | Bassler III, Robert Edward '74  |             | Koehler Jr., Richard F. '67      |             | Cloyd, Joseph R. '02             |
|             | Brown, Harold Thomas '68        |             | Laws, Charles Peter '58          |             | Brechka, Thomas Michael '73      |
|             | Buboltz, Lisa Ann '01           |             | Martel, Philip Omer '72          |             | Compton, Charanne B. '79         |
|             | Graham, Joseph Gund '51         | <b>MA Δ</b> | Nelson, Percy Lyon '47           |             | Denzer Jr., George Charles '61   |
|             | Kasper, Frank Stanley '52       |             | Patterson, John Bryan '68        | <b>NJ B</b> | Schell, Robert Dallas '74        |
|             |                                 |             | Vlahakes, Gus John '71           |             | Herrmann, Eric Peter '69         |
|             |                                 |             | Adams, Randolph Keith '70        |             | Palko, John Raymond '69          |
|             |                                 |             | Curtis, Jonathan Greely '69      | <b>NJ Γ</b> | Wasiewicz, Richard A. '69        |
|             |                                 |             |                                  |             | Castaldi, Frank James '69        |



Williams Club  
**Donald C. Forslund**  
 NJ A '60  
*Supporting my alma mater and  
 TBP is of value to me knowing it  
 serves Stevens students.*



Delta Club  
**Tan D. Tran, P.E.**  
 TX A '87  
*Glad to help TBP to continue  
 providing future engineers a  
 place to belong as it did for me.*

Chi Club continued

**NJ Δ** Moeller, Peter Allan '78  
**NM B** Potts, Richard Gardner '64  
 Farber, Martin John '75  
 Salas, Thomas M. '85  
**NY A** Zich, Jonathan H. '80  
 Au, Peter Yuk Tak '93  
**NY B** Franco, Peter Flavio '76  
 Bickley, Thomas Duane '78  
 Poulsen, Neils Ray '57  
**NY Γ** Diefenbacher, Robert Henry '59  
 Eckstut, Michael K. '73  
 Goldschmidt, David Joel '91  
 Miller, Rollin Ted '46  
 Savage, Robert Eugene '43  
 Wadsworth Jr., Winthrop '76  
 Walter, Robert Wayne '64  
**NY Δ** Harris, Dennis George '70  
 Johnson, William Clifford '54  
 Kahn, Mindy S. '89  
 Philip, James Henry '69  
 Schilke, Neil Arthur '63  
**NY E** Kuhn, Alfred '57  
 Simmons Jr., Edward J. '66  
**NY Z** Brook, John Walter '56  
 Choma, Peter '73  
**NY H** Chu, Lawrence Joseph '71  
 Filipek, Stephan John '82  
 Kern, Frank John '70  
 Kushel, Glenn Elliot '68  
 Schlein, Robert George '72  
**NY Θ** Campana, Michael Albert '94  
 Godlove, Katie Ann '02  
**NY I** Schwartz, Richard '57  
 Telesco, John Charles '69  
 Ulrich, James William '70  
**NY K** Martens, Hinrich Robert '57  
 Muller-Girard Jr., Otto '89  
 Peters, Kenneth Jerome '87  
**NY Λ** Petsche, Frank '78  
 Rigert, John Anthony '70  
 Silverman, Joel Stuart '74  
**NY M** Hurewitz, David Lewis '64  
 Willis, Michael James '82  
**NY N** Stearns, Richard Earl '67  
 Zarchy, Andrew Stephen '73  
**NY O** Eggleston, Peter Anthony '81  
 Jankowski, Cecelia '81  
**NY Θ** Hoelscher, James Roy '71  
**NY P** Abreo, Leslie Anthony '97  
 Pooran, Nakechand R. '90  
 Wong, Wai Kin '85  
**NC A** Minday, Richard Michael '66  
 Quillian, Ann Massey '85  
 Shelton, Monty Lee '84  
 Wynegar, Kathleen M. '86  
**NC Δ** Daemer, Gary G. '92  
 Gaither, Allen Wayne '96  
**ND A** Engbrecht, James Richard '59  
**OH A** Ammar, Gregory Steven '81  
 Brichford, Thomas Kenning '55  
 Zurilla, Ronald William '61  
**OH B** Capriotti, Larry Allan '64  
 Smelser, Ronald Eugene '71  
**OH Γ** Bressler, David Michael '98  
 Carr, Stephen J. '70  
 Edwards, Dale C. '61  
 Huffman, Rodney Lee '83  
 Kerstetter Jr., John Howard '49

Powell, David Allen '71  
 Taylor, Ashley Scott '84  
 Zupancic, Michael Alan '87  
**OH Δ** Davidson, Lee A. '65  
**OH E** Egger, Robert Allen '85  
**OH Z** Herman, Madison Rachelle '13  
 Proctor, Margaret Pearl '82  
**OH H** Chi, Maxwell Michael '91  
 Miller, William Gilbert '83  
**OK A** Dunn Jr., Robert Ovington '82  
 Gimpel, Robert Jefferson '73  
**PA A** Arrowsmith, Donald L. '65  
 Edwards, Gilbert Spencer '67  
 Goldsborough, John Paul '56  
 Haist, Randall Matthew '80  
 Hughes, Michael Rice '87  
 Jones, Donald Paul '65  
 Marshall, Steven John '82  
 Ring, Robert Brex '55  
 Ruth, Richard Lloyd '68  
**PA B** Longenecker, John Robert '71  
 Overbaugh, Thomas Michael '83  
**PA Γ** Chang, Yue Cathy '00  
 Kuhr, Tina Michelle '81  
 Marietta, William Grey '68  
**PA Δ** Lewis, Timothy '64  
**PA E** Hagadorn, Hubert William '59  
 Hermann, Frank Valentine '59  
 Ryan, Richard Edward '86  
 Stephens, David G. '59  
 Thomas, Jeffrey R. '65  
**PA Z** Reetz, Helen A. '78  
**PA H** Fozo, Geza '63  
**PA Θ** Lombardi, Charles G. '65  
 Schoenberger, Lewis Robert '84  
**PA I** Christian, Rob Francis '07  
**PA Λ** Binns, George '59  
**RI B** Brady III, William James '80  
 Fletcher, Gilbert Alan '68  
 Smith, Robert Alan '83  
**SC A** Barnwell Jr., Thomas O. '69  
 Conner, Edward D. '67  
 Curlee III, Thomas Oscar '64  
 Holcombe, Milton W. '53  
 Johnson III, Wilson U. '82  
 Peters, William J. '70  
**SC B** Massey, Kristina Logue '71  
 Skvoretz, Jonathan Maxwell '95  
 Van Zee, John William '75  
**SC Γ** Adkins Jr., Henry Grady '66  
 Fletcher, Robert Hough '64  
 Reed II, Henry McDavid '60  
**SD A** Brass, Lorin Lee '75  
 Jenkins, Creties David '83  
 McCourtie, Bonnie Rae '80  
**TN A** Hitch, Benjamin Franklin '67  
 Lowe, Robert Alexander '70  
**TN B** Brown, George Arthur '55  
 Macchio, Gregory John '84  
 Nicoladis, Michael Frank '82  
 Shireman, John Frederick '76  
**TN E** Climer, Charles Edward '82  
 Nolte, Jennifer Jan '77  
 Nolte, Paul Allen '77  
**TN Z** Rethwilm, Craig Richard '92  
**TX A** Abad-Fitts, Carmen Beatrice '80  
 Anderson, John Eldon '57  
 Belknap Jr., Ralph Augustus '44

Courtney Jr., Lonzo C. '58  
 Garrett, Darrel Wayne '70  
 Howerton, Lloyd Foster '51  
 Huang, Lawrence Peter '81  
 Kopecky, Johnny Anthony '65  
 Peterson, Robert Adrian '80  
**TX B** Koehler, Kerry Jon '92  
**TX Γ** Altman, Thomas Clark '70  
 Mohr, David Norman '72  
**TX Δ** Boedecker, Tom Jay '64  
 Boortz, Marielle Jean '77  
 Ellison, Brian Kirk '97  
 Fink, Tami Neal '91  
 Garner, Scott Jahrand '77  
 Hudson, Steven Mark '77  
 Kramm, Robert C. '81  
 Kunze, Glenn Ray '77  
 Linn, William Ray '81  
 McGinnis, Charles Irving '49  
 Porter Jr., James Walter '51  
 Richards, Tamela L. '81  
 Simpson, Stancy Jean '79  
 Mars Jr., James Floyd '72  
**TX Z** Godwin, Albert Eugene '84  
**TX H** Potvin, Alfred Raoul '64  
 Suley, Eniola Oluwasola '14  
 Williams, Larry Donal '80  
 Witt III, Arthur William '68  
**TX Λ** Hinojosa, Juan Jose '84  
**UT B** Craig, Donald Dean '82  
 Hardy, Mark Douglas '84  
**VT B** Dekalb, Shawn Wayne '85  
 Komoni, Krenar '06  
**VA A** Mizelle, Peter Privott '60  
 Shirley, David Eugene '65  
**VA B** Barnes, Edgar Eugene '68  
 †Bucklen, Okley Bert '59  
 Hyduke, Robert Alan '74  
 Maloney, Melissa Marie '90  
 Nowotarski, Adam A. '91  
**VA Γ** Mahaney, Jack Morris '82  
 Sturm, Carroll Clark '78  
**VA Δ** Brenner, Joseph R. '55  
**WA A** Bullock, Dennis Eugene '76  
 Fosberg, Theodore Michael '59  
 Melton, Ronald Benjamin '77  
 Ogg, Daniel Grant '85  
 Saxberg, Bror Valdemar H. '80  
 Stiegler, Joseph Edward '58  
**WA B** Anderson, Kyle Joseph '03  
 Large, Robert William '60  
 Nemitz, Rodney Eugene '86  
 Williams, Harvey Ray '59  
**WA Δ** Champion, Paula JoAnne '00  
**WV A** Campbell, Donald Franklin '78  
 Tompkins, Joseph Andrew '77  
**WV B** Farmer, Harry Clayton '70  
 Harding, Thomas Wayne '86  
**WI A** Antolovich, Stephen Dale '62  
 Buehring, William Arthur '67  
**WI B** Nesbitt, John David '82  
 Derra, Kenneth William '90  
 Ellis, Thomas E. '84  
 Gawlik, Michal A. '14  
 Pelt, Thomas Eugene '70  
 Schiedermayer, Ruth Hines '81  
 Simon, James Bernard '65  
 Smith, Thomas M. '60

# Alumni Giving



Delta Club

Joan M. Sciacca

CA M '87

*I give back because the Engineering Futures Program started my passion for leadership.*

## The SECOND CENTURY Club

### \$500

- AL A** Kalil, Issa A. '80  
Melton, James Bruce '77
- AL B** Davis, George Vestal '59  
Grider, Kelly Vernon '58  
Moore, Ronald Allen '69  
Sims, Kenneth Lewis '71
- AL Γ** Banasiewicz, Kenneth A. '79  
Foust, Earl Richard '71  
Purcell, George Kenneth '74  
Laws, Crystal Dianna '08
- AL Δ** Burns Jr., Bill Brannon '72
- AL E** Krauss, Leroy E. '50
- AZ A** Takinen, Scott Alan '79
- AR B** Clark, Terence Brent '56  
Perciful, Jerry Cecil '60
- CA A** Florez, Valerie Province '99  
Gourdin, William H. '72  
Humphreys, George Baxter '51  
Rae, James William '52
- CA B** Scandella, Carl John '66
- CA Γ** Bankovitch, Walter John '87  
Ickes, Robert William '65
- CA Δ** Burley, Cameron Hale '55  
Judson, Paul '48  
Lawson, William Edward '62
- CA E** Tamanaha, Howard S. '77  
Walker, David Allen '78
- CA Z** Battle, Thomas Michael '73
- CA H** Bautista, Anthony H. '94  
Cox, Michael James '12  
Wang, Hui-Zhi Angela '88
- CA Θ** Asahina, David Takashi '78  
Murray, Donald I. '72
- CA Λ** Saephan, Syta '00  
Wells, Russell Patrick '77
- CA M** Empey, Daniel Martin '82
- CA N** Bales, Deborah O. '77
- CA Ξ** Fowler, David Michael '92  
Libby, Jean Marie '80
- CA O** Flentz, John Michael '77  
Mauthardt, Alan Lee '81
- CA P** Hall, Mark Corwin '88
- CA Φ** Bobbitt, Kelle Allen '92
- CO A** Stratton, Joan Victoria '74
- CO B** Bain, Lawrence Joseph '59  
Brueck, Robert Lewis '59  
Castleman, Curtis Hulen '67  
Cole Jr., Charles Owen '61  
Grasmick, Allen D. '74  
Woempner-Martin, Cynthia E. '81
- CO Z** Bridges Jr., Roy Dubard '65
- CT A** MacDonald, Mac Hall '64  
McEligot, Donald Marinus '52
- CT B** Grossman, Richard Larry '69  
Valerio, Clement V.A. '70  
White, William Richard '65
- CT Γ** Allen, Elizabeth Anne '01
- DE A** Neimeyer, Terry Francis '77  
Titi, Gerard William '79  
Witt, Jeffrey Lawrence '81
- DC Γ** Laguarda, Leonel '79
- FL A** Caraway, Sean Lee '93  
Glass, John Dorrance '73  
Ireland, Ronald Joe '61  
Milburn, David M. '91

- FL B** Militello, Sam '61
- FL Γ** Pitt, Gary Alvis '70  
Schoppman, Gregg M. '08  
Nunez, Ramon Luis '75  
Glenn, Frederick '92  
Phares Jr., Hal Paul '80
- GA A** Bodner, Douglas Anthony '87  
Gumm, Milton Sherman '67  
Ham, John Michael '80  
Olive, Charles Michael '70
- IL A** Hendron Jr., Alfred Joseph '59  
Miller, David Archer '61  
Rosenthal, Mark Alan '81  
Wilton, Donald Robert '64
- IL B** Filetti, Edmund George '54  
Jones, Harold Chester '49
- IL Γ** Dorn, James David '54  
Herman, Richard Neal '55  
Rauh, Donald Albert '70  
Rivera, Angel Luis '80
- IL Z** Villasenor, Jaime Salgado '87
- IN A** Anders, James Larry '72  
Foster III, John I. '74  
Frazier, George E. '57  
Horneys, David Chris '53  
Minniti Jr., Robert Joseph '70  
Stepro, Dennis C. '71  
Willson, James K. '65
- IN B** Jones Jr., Thomas George '49
- IN Γ** Harvey, Francis Joseph '65
- IN Δ** Bolur, Adam Reza '02
- IA A** Doyle, Kevin Richard '71  
Gaul, Alan David '83  
Houston, Melissa Kay '95  
Johnson, David Charles '64  
Kurr, Amy Catherine '18  
Neumayer, Robert '59  
Oguntimein, Gbekeloluwa B. '74  
Ryken, Mike Jon '96  
Sorensen, John Albert '62
- IA B** Braet, Ronald Lee '63  
Schaefer, Dean Allen '66
- KS A** Milleret Jr., George R. '70  
Woelk, Darrell Wayne '71
- KS Γ** Hightower, Ray E. '64  
Peterson, Jon Howard '68
- KY A** Feather, Arthur Edward '74
- KY B** Cooper, Brian Edward '88  
Hughes, Earl Christopher '76
- LA A** Evans Jr., Alfred Woodson '51  
Miller Jr., Frank C. '62  
Lazarus, William Ballenberg '79
- LA B** Hammons, Robert William '78
- LA Γ** Mercer, Audley A. '59
- LA Δ** Hoffman III, William Cline '84
- ME A** McBurnie, Jeffrey Charles '82
- MD A** Howard, John Edward '65  
Yaffe, Barry Marshall '62
- MD B** Errera, David Raymond '75  
Mitchell, Reginald Henry '72  
Stewart, Larry Edwin '60  
Tracy, Anita Lynne '89  
Williams Jr., Joseph B. '66
- MD Γ** Hauge, Todd Allen '83
- MA A** Kolley, Chester Michael '85
- MA B** Villani, Thomas Michael '82  
Buncher, Charles Ralph '60  
Frassinelli, Guido Joseph '48
- Honigsberg, Charles Alan '52
- Liepins, Atis A. '57
- Nadel, Miriam Heidi '80
- Post, Allen Edward '66
- Russo, Gilberto '69
- van Raalte, John A. '59
- Serencha, Mark John '93
- Devney, Peter '89
- Ethier, Francis Alfred '68
- Hankey, James Joseph '69
- Laios, Takis '78
- Le Rette, William Edward '92
- Loto, Thomas Anthony '93
- Murphy, Kelly Ann '83
- O'Donnell, John J. '56
- Sarafinas, Aaron '82
- MA Z** Cramer, Robert Alan '80
- MA H** Daniels, Susan Carol '81
- MA Θ** Craven, McCharles Anthony '91  
Furlong, Kim Marlene '87  
Moran, James Edward '83  
Paul, David Dickson '92  
Cobb, Andrew John '79
- MA I** Cameron, John Howard '68
- MI A** Hills Sr., Richard Ervin '61  
Othmer, Hans George '65
- MI B** Durfee, George Lee '51  
Dykema, Adrian Henry '44  
Ohlogge, Kevin Charles '83  
Sauer, Daniel Michael '05  
Stamm, John Andrews '61
- MI Γ** Allwin, Roger Paul '75  
Bayer Jr., Charles M. '77  
Davis, Robert Allan '81  
Hensel, John Charles '52  
Hubbell, Thomas W. '71  
Lempke, James Donald '83  
Thomas, David Charles '56  
Youse, Rex Jacob '57
- MI E** Cleary, Gary Kenneth '71  
Whitehead, Tonya J. '17
- MI Z** Erickson, Adam Alexander '88
- MI H** Kipp, Eric Michael '98
- MN A** Smits, Talivaldis Ivars '59
- MS A** Dowdle, Walter Lynn '67  
Hicks Jr., Alfred Barrett '73  
Knesal Jr., William Edward '73  
Warren, James T. '60
- MO A** Hardin, John Wesley '87
- MO B** Salerno, Michael Joseph '84  
Berkey, Vernon Glessner '50  
Clemence, Samuel P. '62  
Shofner, Terrence David '73
- MO Γ** Swallow, Louis John '54
- NE A** Fortik, Jason LaVern '98  
Iwan, Russel Ray '81  
Matthews, Deborah Jo '82  
Shanmugam, Alagappan '83
- NH A** Bean Jr., Stanley Oscar '57  
Hertel, Mark A. '72  
Lof, Richard J A '71
- NJ A** Carow, Walter Marvin '50  
Dudis, Joseph '64  
Gertz, Alan Seymour '45  
Swanson, Frederick James '68
- NJ B** Jagodinski, Lorraine W. '84
- NJ Γ** Barry, James J. '70  
Budzyn, Ludomir Alexander '90

De Cosimo, Lawrence Peter '69  
 Gumann, Ronald John '76  
 Morgan, Dennis Ross '68  
**NJ Δ** Reznak, Frederick John '69  
 Bennett, Karl Edward '76  
**NY A** Gross, Gary Robert '80  
 Chaudhry, Sohail S. '74  
**NY B** Mullervy, John '00  
 Glaser, Anthony Joseph '51  
 Prykull, Cory James '15  
**NY Γ** Rice, Ann Rooks '78  
 Bushell, Michael '60  
 Chow, Francis M. '96  
 Kaplan, Steven Howard '67  
 Levy, Michael David '89  
 McAninch, Ian Matthew '02  
 McKersie, Alan David '52  
 Rillings, James Harrington '64  
 Segal, Joshua L. '68  
**NY Δ** Kovacs, Sandor Janos '69  
 Sinclair, Leroy W. '66  
 Surovy, Randall J. '78  
 Willis III, William Thomas '66  
**NY E** Barto, Thomas Peter '70  
 Gallo, Santo Vincent '72  
**NY H** Del Mazo, Jorge R. '69  
 Luftig, Stephen David '70  
 Sugin, Leonard '55  
**NY Θ** Hunt II, William Edward '59  
 Saviz, Camilla Margaret '87  
**NY I** Andrews, Richard Francis '79  
 Berger, Jack Solomon '61  
 Brand, Alfred H. '67  
 Bravo, Aldo '71  
 Lerner, Steven Larry '75  
 Selinger, Carl S. '67  
**NY K** Singer, Bart Alan '82  
**NY M** Charlton, John William '62  
**NY N** Frame, Barbara '80  
**NY Ξ** Bruzzone, Anthony Federick '12  
 Kehrberger, Patricia M. '69  
 Short, Rosemarie '91  
**NY O** Imbrogno, Christina '14  
 Imbrogno, Joseph Michael '12  
 Kao, Imin '81  
 Kogel, Lawrence Jay '71  
**NY P** Hartmann, Martin Robert '83  
**NC A** Bishop, Ernest A. '73  
 Hagarty, Edward Patrick '77  
 Nofziger, Charles Lev '73  
 Olds II, John Robert '87  
**NC Γ** Wine, Charles Joseph '59  
**NC E** Blunk, Thomas Reynolds '92  
**ND A** Schmidt, Wayne Joseph '50  
 Seppanen, John Louis '86  
**ND B** Burchill, Melissa Jane '02  
**OH A** Andersen, Kayla Brooke '17  
 Hilberman, Dan '63  
 Lund, Jeffrey William '69  
 Meissner, Robert Paul '53  
 Tomasch, Walter John '52  
 Whitney, Gina Marie '80  
**OH B** Avellano, Michael Anthony '85  
**OH Γ** Nilsson, Nils Eric '71  
 Billmire, David Arch '72  
 Choyke, Wolfgang Justus '48  
 Engen, Todd Christian '81  
 Stambolis, James Nicholas '70  
**OH Δ** Miller, Rodger Kinnear '65  
**OH E** Hrabak, Marguerite J. '74  
 Kuczarski, Maria Ann '84  
**OH Z** Snyder, Christopher Alan '83  
**OH H** Merkle, Larry '92  
 Nygaard, George Martin '67  
 Wolfe, Stephen A. '85

**OH I** Marone, Victor D. '59  
 Muskoff, Terry Edward '67  
 Walker, David W. '72  
**OH K** Thome, Ted Lee '81  
**OH Λ** Folk, Joseph William '98  
**OK A** Selak, August John '79  
 Kahler, Jon Paul '70  
 Robbins III, George Earl '74  
 Shoebotham, Thomas B. '56  
**OK B** Hand, Ronald Wayne '72  
 McConnell, Chuck G. '65  
 McKinley, Gordon Stuart '90  
**OR A** Sterk, Frederick John '64  
**PA B** Bridge, David Lee '71  
 Ripsom, George Anthony '60  
 Szkudlapski, Edward H. '79  
**PA Γ** Bolser, William Charles '69  
 Chong, Jike '01  
 De Paul, Louis Anthony '73  
 Kaplan, David Seth '03  
 Madine, Gary Edward '82  
 Miley II, George Hunter '55  
 Poffka, Allen Jack '71  
 Sack, John Stuart '75  
**PA Δ** Nackoney, Ogden G. '63  
 Yaccarino, Robert Gerard '85  
**PA E** Odenwelder, Dale George '73  
 Ott, Timothy Ray '86  
 Spencer, David Bruce '67  
**PA Z** Andrichak, Christopher S. '95  
 Hrebien, Leonid '75  
 Kuntz, Jason Paul '95  
 Shaffer III, Thomas Hillard '68  
 Strieffler, Frank H. '91  
 Weiermiller, Eugene '68  
**PA H** Russell, J. Frank '74  
 Sweetman, Denman John '60  
**PA Θ** Barron Sr., William Robert '60  
**PA I** Martelli, Phil Joseph '85  
**PA Λ** Francisco, Amy Denise '99  
 Krebs, Christopher Paul '76  
**PR A** Lebron, Jose Antonio '77  
**RI A** Garrett, Scott Lee '57  
**RI B** Bradley, Ken Alan '81  
 Mastrostefano, Vincent A. '75  
 Calcutt, Walter Wade '91  
**SC A** Exley Sr., Slade Forrest '72  
 Gramling, Jeffrey J. '85  
 Hill, James C. '61  
 Marley, Brian Lee '89  
 McMullan, Richard Jeffrey '91  
**SC B** Rippy, Crystal D. '93  
**SD A** Mosier, Donald Earl '78  
**TN A** Conway, Tammy Kay '82  
 Exum, Joe Hardman '52  
 Jenkins, Alvin Leigh '61  
 Kennedy, Earl Powell '60  
 McDonald, Kristen Lynn '08  
 Sarnaik, Jagadishchandra '81  
**TN B** Vaughn, Bruce Kevin '88  
**TN Γ** Patterson, James Michael '68  
 Ross, Anthony Dwayne '72  
**TN Δ** Reves, Benjamin Taylor '05  
**TN E** Thompson, David Andrew '00  
**TN Z** Keck, Christopher Clark '95  
**TX A** Aguren, Gary Dennis '62  
 Shields, David Ray '00  
 Wilkes, Chester Peyton '50  
**TX B** Davis, David Lynn '75  
 Houston, Scott Lee '96  
 Jain, Ravinder K. '71  
**TX Γ** Ochoa Jr., Alfred Anthony '76  
**TX Δ** Casco, Andres Enrique '99  
 Johnson, Vance Clay '78  
 Scott Jr., Charles M. '53

Tipton, Dewey Ross '64  
**TX E** Ryan III, James Joseph '70  
 Weaver, Drew S. '69  
**TX H** Benson, Marvin Dale '79  
 Tepper, John C. '82  
**TX K** Harness Jr., Jerry Wayne '03  
 Rogers, Decatur Braxton '67  
**UT A** Gehmlich, Dietrich Karl '53  
 Rigby, Norman Carl '58  
**UT B** Dickson, Lloyd Brent '63  
**UT Γ** Esplin, Robert Barton '04  
**VT A** Wilson, Adam Bertrand '89  
**VA A** Loucks, Steven Jay '64  
 Stansell Jr., Thomas Atlee '57  
**VA B** Rogers, Decatur Braxton '67  
 Parsons, Jerome S. '66  
**WA A** Chou, Chung-Kwang '75  
 Grant, Patrick William '95  
 Haase, Richard H. '50  
 Levin, Marc E. '80  
 Wilkins, Lynn Alan '76  
**WA B** Groat, J. Everett '94  
**WV A** Easterling, W. Samuel '81  
 Johnston, John Walter '73  
 Weekley Jr., Gene Rolland '63  
**WV B** Janeshek, Anthony Martin '74  
**WI A** Devoe, Michael James '78  
 Severson, Roger Eugene '76  
**WI B** Fons, Richard John '79  
 Reak, Ronald Peter '63  
**WI Δ** Palmer, Mark William '90  
**WI E** Eichman, Donald Gerald '06

The FOUNDERS Club

**\$250**

**AL A** Lewis, William Douglas '78  
 Packard, James Donald '88  
 Reilly, Patrick Francis '93  
**AL B** Elmore, Gregory David '97  
 Franks, Larry Daniel '71  
**AL Δ** Sharp, Gary Allen '93  
**AZ A** Rosoff, Hank '79  
**AZ B** Gembarowski, Charles Jerry '74  
 Roberts, Jackson Harris '69  
**AZ Γ** Bartlett, Ricky Alan '88  
**AR A** Dockery, David Eugene '76  
 Johnson, Cody '15  
**CA A** McKinnie, Jane Lillian '84  
 Chang, Benjamin C. '88  
 Spinazze, Laurel '55  
**CA B** Almassy, William Thomas '71  
**CA Δ** Fujihara, Glenn Yoshihiro '74  
 Grabowski, Eric Michael '91  
 Klein, Jerry Alan '61  
 Mehnert, Warren Leon '65  
 Roberts, Harry '73  
**CA E** Scottoline, Charles A. '61  
 Delettretz, Jacques '65  
 Kadokura, Keith Kenji '76  
**CA Θ** Fuentes, Jorge Salomón '84  
 Horan, Michael William '82  
 Pierce, Sean Estelle '87  
**CA I** Kwong, Ray S. '65  
**CA Λ** Coffman, Alex Daniel '18  
 Wilson, Darrell M. '73  
**CA N** Hoevel, Kay '77  
**CA Ξ** Biggs, Daniel Stanley '74  
**CA O** Montagna, John Nicholas '64  
 Wong, Peter '78  
**CA Ψ** Chu, Vincent Shu-Lai '99  
**CA Ω** Ward, John Lee '00  
**CO A** Drennon, Clarence Bartow '58



## MICHAEL J. HAND III

MICHIGAN GAMMA '11

*Nominated by the Ann Arbor Area Alumni Chapter.* Mike has B.S. & M.S. degrees in EE and electrical engineering systems from the University of Michigan.

He works at Ford as an autonomous vehicles systems engineer, was initiated by MI Gamma in 2009, and has been involved in leadership and

volunteer roles ever since—roles that have provided him with the skills and experience necessary to be an effective member of the Executive Council.

Mike's TBII involvement has connected him to numerous facets of the organization. He served as MI Gamma Chapter president and Advisor, and as chair of the Student Advisory Board, is a TBII Fellow (2012), helped establish the Ann Arbor Alumni Chapter, from 2014-18 helped lead the Constitution and Bylaws reorganization, and in 2020 was instrumental in planning and executing the virtual "Unvention." He has attended every Convention since 2011 and currently assists chapters by serving as a District 7 Director.

If elected, Mike will work to create Association committees to provide more volunteer opportunities for students and alumni, expand chapter resources, streamline the organization's operation, expand the Association's commitment to DEI initiatives by leveraging data, and utilize digital communication platforms to better connect members. In his free time, Mike works on projects around the house, homebrewing, and training his newly adopted dog, Fiona.



## MARLA A. PETERSON

ARIZONA ALPHA '83

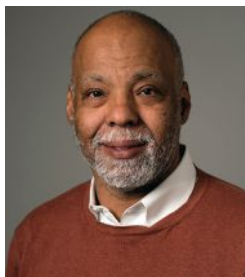
*Nominated by the Arizona Alpha Chapter.* Marla earned a B.S. in systems engineering from the University of Arizona (UA), where she served as AZ Alpha Chapter vice president for two years.

She initially joined Garrett, now Honeywell, and refined her love of technology and efficiencies by becoming

a Black Belt, Lean Expert, and Lean Master. Now, Marla is a senior technical manager for Continuous Improvement. She has been dedicated to aerospace product excellence for 38 years, serving in leadership positions for over 25 years at various levels.

Marla is a founding member of the Engineering & Technology Diversity Council and Women in Honeywell network. She also serves as the Honeywell corporate program manager for engineering diversity events and is the campus manager of UA. She also continues to mentor and sponsor interns, new hires, and experienced women in aerospace.

Marla is a member of the University of Arizona Systems and Industrial Engineering Advisory Council, served as Chairwoman of the University of Arizona Phoenix Alumni Board Scholarship Committee (12 years), and served as President of the University of Arizona Maricopa County Engineering Alumni Board.



## LEO H. McWILLIAMS

INDIANA GAMMA '82

*Nominated by the Indiana Gamma Chapter.* Leo received his B.A. in economics, B.S. and M.S. degrees in electrical engineering, and a Ph.D. in electrical engineering all from the University of Notre Dame.

Dr. McWilliams is assistant dean of undergraduate programs and director of the minority engineering program in the college of engineering at the University of Notre Dame.

He recently completed his 20<sup>th</sup> year on the faculty of the University of Notre Dame, where he has also served as an instructor in the first year engineering program. Prior to joining Notre Dame, Leo worked as a principal engineer at Honeywell International in the aerospace sector.

Dr. McWilliams was initiated into TBII in 1981 by the IN Gamma Chapter, where he has served as Chief Advisor since 2013.

He fosters an environment that supports student success by working with admissions to help recruit engineering students and by advising the National Society of Black Engineers and the Hispanic Engineers and Scientists student chapters. He also helps them engage as university leaders.

He is interested in identifying institutional barriers that can help increase the number of eligible students from disadvantaged groups.



## RUSS W. PIERCE

WASHINGTON ALPHA '70

*Nominated by the Washington Alpha Chapter.* Russ earned B.S. and M.S. degrees in electrical engineering from the University of Washington. Later, he received an MBA with a concentration in technology management from the Florida Institute of Technology.

Prior to retiring, Russ had a distinguished management career and also taught at the

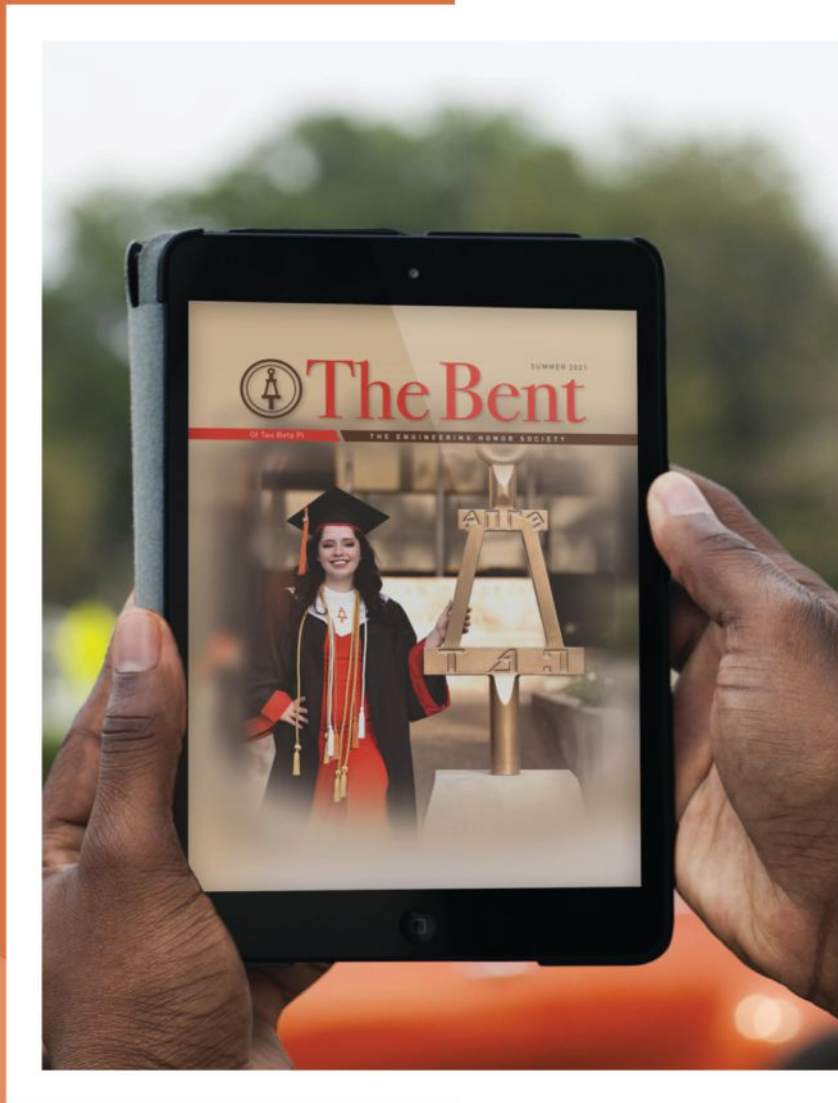
University of Phoenix. As he took on more leadership responsibilities in his engineering, aerospace, telecommunications, and management consulting career, he found that he enjoyed solving people problems as much as technical ones. When he learned in 1992 that TBII had a program teaching engineering students basic leadership skills, he volunteered to become an Engineering Futures Facilitator and has been one ever since.

Russ has also served as a TBII District Director, Program Director, and is a member of the Executive Council. He's an advisor to the WA Alpha, TN Delta, and TX Delta (Qatar) Chapters and a member of the Puget Sound Alumni Chapter.

His membership in and service to the Association are among his proudest accomplishments and nothing gives him more pleasure than passing on accumulated knowledge and skills to the future leaders of the engineering profession. He lives in Washington State with his wife Pauli and they enjoy international travel.

# UPGRADE YOUR BENT SUBSCRIPTION TO *DIGITAL*

DIGITAL ISSUES ARRIVE SOONER,  
JUST KEEP YOUR EMAIL UPDATED!



**Tau Beta Pi**  
The Engineering Honor Society

Life subscribers can add a digital  
subscription free of charge.

Email [member.update@tbp.org](mailto:member.update@tbp.org) or go to  
[www.tbp.org/?lifesub](http://www.tbp.org/?lifesub)

NO MORE LOST COPIES AND SAVES THE ASSOCIATION MONEY!

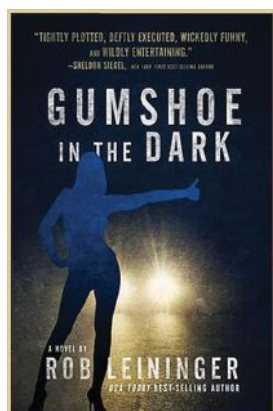
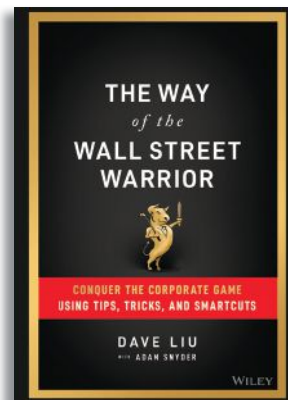
# Authors

Recently published a book? If so, we would like to recognize you! Send details and a cover image to [dylan@tbp.org](mailto:dylan@tbp.org).



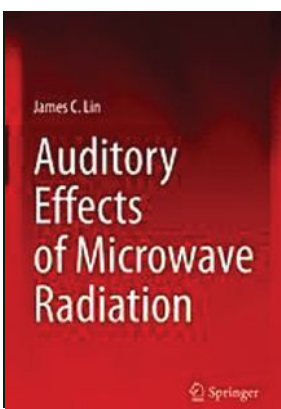
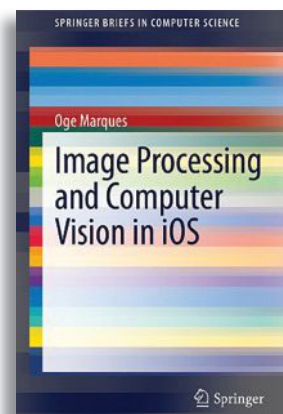
**Jose A. Caraballo**  
Puerto Rico Alpha '83  
**Guide: Cleaning Validation Lifecycle - Applications, Methods, and Controls**  
Jose coauthored this book, published by the International Society for Pharmaceutical Engineering in August 2020, which provides a hands-on approach to support the life science industry in the development of compliant cleaning programs. He is a Biotech executive at Kite Pharma, Inc.

**Dave A. Liu**  
Pennsylvania Delta '93  
**The Way of the Wall Street Warrior**  
Dave authored this book, published by Wiley Nov. 2021, which is a humorous guide to conquering the corporate game. He'll show you how to excel in any industry where you're mining for gold. Dave is a 30-year veteran of Wall Street and Silicon Valley who has started multiple companies and raised \$15 billion.



**Robert F. Leininger Jr.**  
Nevada Alpha '80  
**Gumshoe in the Dark**  
Robert is author of this fifth book in *The Mortimer Angel Series*, published in June. The novel is a private eye, mystery thriller. He is a *USA Today* best-selling author with a mechanical engineering degree from University of Nevada, Reno.

**Oge Marques, Ph.D.**  
Florida Epsilon '87  
**Image Processing and Computer Vision in iOS**  
Oge is author and professor at Florida Atlantic University. The book presents the fundamentals of mobile visual computing in iOS development and provides directions for developers and researchers interested in developing iOS applications with image processing and computer vision capabilities (2020 Springer).

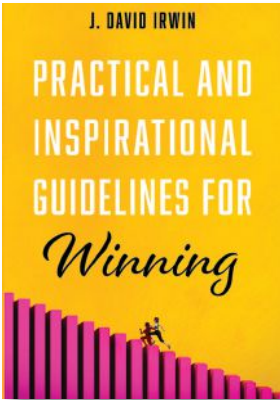


**James C. Lin, Ph.D.**  
Illinois Zeta '66  
**Auditory Effects of Microwave Radiation**  
James is author of this book, published in 2021, that examines the human auditory effects of exposure to beams of high-power microwave pulses. He is professor emeritus at the University of Illinois at Chicago, authored or edited 13 books, and is Editor-in-Chief of the *Bioelectromagnetics* journal, since 2006.

**Raymond A. Rochat, P.E.**  
Tennessee Alpha '57  
**Hmmm>>> Hold memories in print! Knoxville, Knox Cty, TN**  
Raymond is author of this book published in 2020. It features 200 images of Knox County and Rochat's work of a temporary streetcar museum (from his own collection) that was exhibited at the East Tennessee Historical Society. He earned B.S. and M.S. degrees in engineering from the University of Tennessee.



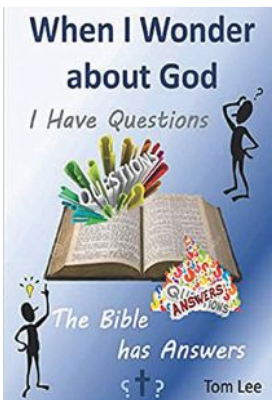
# Authors continued



**J. David Irwin, Ph.D.**  
*Alabama Alpha '61*

**Practical and Inspirational Guidelines for Winning**

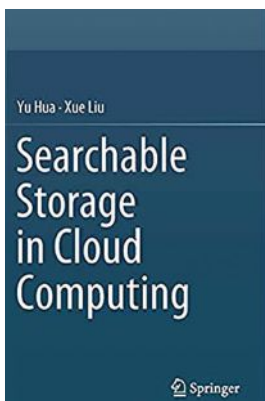
David has written this book, Resource Publications 2021, that employs a strategic mix of psychology and common sense in providing guidelines for achieving success in interpersonal relationships regardless of the context. He is professor and department head emeritus at Auburn University.



**Thomas G. Lee**  
*Colorado Gamma '61*

**When I Wonder About God: I Have Questions The Bible Has Answers**

Thomas published this book in 2020. It's his attempt to find answers to religious questions that are important to anyone's understanding of their relationship with God. He encourages readers to investigate their own answers. He has a B.S. degree in mechanical engineering.



**Xue Liu, Ph.D.**  
*Illinois Alpha '05*

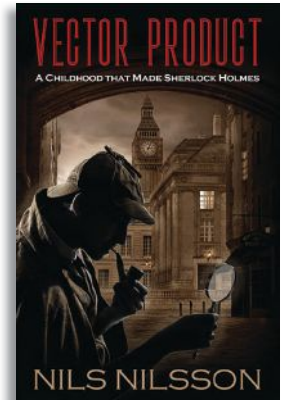
**Searchable Storage in Cloud Computing**

Xue is coauthor of this book published in 2019, which presents the work in terms of searchable storage in cloud computing. It introduces new schemes for exploring and exploiting the searchable storage via cost-efficient semantic hashing computation. He is a professor at McGill University and is an IEEE editor.

**Nils E. Nilsson, P.E.**  
*Ohio Beta '71*

**Vector Product**

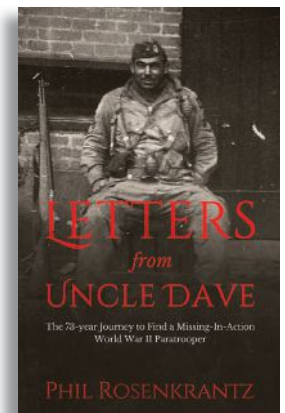
Nils is author of this book published in 2021 by Outskirts Press. He was an application engineer at FirstEnergy for 33 years, later taught as an adjunct professor at Youngstown State University, and has retired a couple of times. His first novel was a mystery and this new one is a philosophical novel.



**Phillip R. Rosenkrantz, Ed.D., P. E.**  
*Michigan Zeta '72*

**Letters from Uncle Dave: The 73-year Journey to Find a MIA WWII Paratrooper**

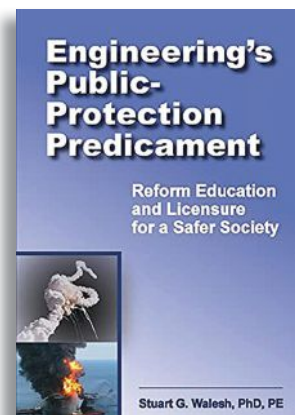
Phil published this book in September 2020 after spending 20 years researching his missing uncle and ultimately seeing his remains found and brought home. He is professor emeritus at Cal State Polytechnic University, Pomona, having taught for 35+ years.



**Stuart G. Walesh, Ph.D., P.E.**  
*Indiana Delta '63*

**Engineering's Public-Protection Predicament**

Stuart's book published in March 2021 offers action ideas for interested individuals and organizations wanting to take engineering up to the next level and improve public safety. He is an independent consultant specializing in water resource engineering and has now published eight books.



# CHAPTER ETERNAL

Our fellow Tau Bates who are gone, but never forgotten.



Indiana Alpha '46

**Stephen D. Bechtel Jr., P.E.**

March 15, 2021

*Leader of engineering firm Bechtel, delivered address at the 100th TBII Convention, was a 2008 TBII Distinguished Alumnus, and grants supported STEM programs.*

The condensed style of these notices is made necessary by the Association's large membership and space limitations in *The Bent*. You may contact the Editor for additional facts (if available) concerning the following deceased members. The assistance of all is earnestly sought in reporting the deaths of Tau Bates, including full name and date of death. You may report the death of a member by sending an email to [chapter.eternal@tbp.org](mailto:chapter.eternal@tbp.org).

## ALABAMA

### ALPHA AL A

Shaw, Winfred A., '41, December 2, 2001.  
Duncan III, William J., '43, March 30, 2002.  
Wilkins Jr., Marion Henry, '43, no details.  
Brooks, George Henry, '50, no details.  
Clark, Warner Thomas, '57, April 4, 2006.  
Turner, Donald Winston, '65, August 24, 2006.  
Miller, William Andrew, '67, July 26, 2012.  
Portwood, Ken C., '71, October 2, 2006.  
Rhodes Jr., Joseph A., '73, Sept. 12, 2013.  
Philippona, Derk S., '80, March 2, 2020.

### BETA AL B

Brown Jr., Ralph Auldon, '47, no details.  
Thropp, Harold Irwin, '47, no details.  
Winslow, Kenneth R., '47, March 18, 2021.  
Powell, Fred Bouch, '49, no details.  
Legardeur Jr., George V., '50, no details.  
Eastwood II, George Ston, '52, March 6, 2021.  
Jorden, Donald Kenneth, '55, Nov. 6, 2011.  
Matheny, Herschel Albert, '57, Jan. 23, 2021.  
South, Henry Thomas, '59, Dec. 25, 2005.

### DELTA AL Δ

Lee, Thomas J., '58, no details.

## ARIZONA

### ALPHA AZ A

Martin Jr., Thomas Lyle, '42, Oct. 8, 2009.  
Womack, Donald Eugene, '50, Nov. 27, 2020.  
Willard, David Wayne, '72, May 23, 2003.

### BETA AZ B

Bjorklund, Christian C.K., '64, Feb. 6, 2014.  
Burton, Robert Claud, '72, August 28, 2006.

## ARKANSAS

### ALPHA AR A

Emmert, Robert I., '53, November 1, 2017.  
Biggadake, Robert H., '58, March 26, 2020.  
Venable, Charles Edward, '58, April 20, 2021.  
Williams, Curtis Ray, '63, Dec. 12, 2020.  
Johnson, William Carl, '67, Dec. 18, 2020.

## CALIFORNIA

### ALPHA CA A

Elliott, Donald Tyler, '46, March 13, 2021.  
Tellep, Daniel Michael, '54, Nov. 26, 2020.  
Reynolds, Blake W., '59, March 2, 2002.

### BETA CA B

Ikawa, Miyoshi, '41, March 7, 2006.  
Jerrems, Alex Staplor, '42, no details.

### GAMMA CA Γ

Hunt, David Albert, '45, no details.  
Kroeger, John W., '54, February 19, 2019.  
Hall, Richard Walton, '61, July 2, 2002.  
Nayfeh, Ali Hasan, '62, March 27, 2017.  
Dixon, Gregg Woodford, '66, June 24, 2019.

### DELTA CA Δ

Grannis, Norman J., '64, February 19, 2021.

Nichols, Roberta Jean, '79, no details.

### EPSILON CA E

Sholes, Raymond A., '48, January 17, 2021.  
Brinkmeyer, William Henry, '60, Feb. 5, 2021.

### ZETA CA Z

O'Sullivan, Michael R., '53, May 14, 2011.

### ETA CA H

Yoshikado, George, '63, December 26, 2005.  
Hatch, Peter John, '84, no details.

### THETA CA Θ

Ford, Robert Alden, '66, March 7, 2000.  
Aldridge, Edward Joseph, '76, July 7, 2007.

### LAMBDA CA Λ

Easter Jr., George John, '72, Feb. 6, 2006.

### MU CA M

De Guzman, Norman-Jay J., '94, May 13, 2008.

### NU CA N

Buehrer, Robert Jacob, '93, Dec. 6, 2018.

### XI CA Ξ

Peek, George Franklin, '78, Sept. 18, 2006.

### PI CA Π

Schmidt, Antony, '42, no details.  
Olinger, Frank Verl, '67, no details.

### RHO CA Ρ

Bevill, Vincent Darrell, '52, April 28, 2005.  
Craig Jr., John Victor, '78, June 6, 2005.

### UPSILON CA Υ

Boudro, Daniel Joseph, '84, Oct. 10, 2010.

### PHI CA Φ

Panico, Vincent Daniel, '69 November 23, 2003.

## COLORADO

### ALPHA CO A

Grosvenor, Niles Earl, '52, April 7, 2006.  
Sydejko, Louis Peter, '58, April 4, 2006.  
Schieltz, Jon David, '61, January 10, 2021.

### BETA CO B

Emery, Edward M., '48, April 12, 2020.  
Albrecht, Paul F., '52, January 29, 2020.  
Muth, Wayne Allen, '54, October 6, 2016.  
Davidson, James Clark, '57, no details.  
Hixon, Fred O'Dell, '57, March 9, 2007.  
Jensen, Arlo James, '61, February 18, 2008.  
Fowler, Julian Larry, '64, January 6, 2006.  
Robinson, Theodore Weldon, '64, no details.

### GAMMA CO Γ

Weese, John Augustus, '55, July 31, 2020.

## CONNECTICUT

### ALPHA CT A

Schultz Jr., Earl K., '49, November 12, 2002.  
Simpson, Theodore Bert, '50, Feb. 9, 2007.

### BETA CT B

Staiger, Eugene Harold, '57, April 25, 2021.  
Welsh, Garrett Reed, '69, April 5, 2005.

Zito, Gaetano Anthony, '69, no details.

## DELAWARE

### ALPHA DE A

Andrechak, Eugene, '51, no details.  
Fagen, Edward A., '52, March 3, 2021.  
Sirman, John Monitor, '60, Dec. 19, 2020.  
Balder, Jay Royal, '63, June 12, 2003.  
Black, Thomas Alan, '67, no details.

## DISTRICT OF COLUMBIA

### ALPHA DC A

Duke, Jesse C., '41, January 7, 2009.

### BETA DC B

Meister, Robert, '49, January 11, 2019.

### GAMMA DC Γ

Sood, Yogesh K., '85, December 10, 2000.

## FLORIDA

### ALPHA FL A

Tremoulet, Paul Conand, '66, no details.  
Farkas, John Joseph, '72, January 15, 2001.

### BETA FL B

Sholar, Maurice Allen, '63, Feb. 19, 2012.  
Hinckley, Kerrie Ann, '90, no details.

### GAMMA FL Γ

Ciltsdorf, Maryann, '75, no details.  
Collins Jr., William Louis, '75, March 6, 2021.

### DELTA FL Δ

Phillips, James Donald, '58, no details.

## GEORGIA

### ALPHA GA A

Covington, Emmett H., '44, no details.  
Kyker Jr., Daniel Clay, '46, July 30, 2008.  
Anderer, Joseph Henry, '47, August 1, 2019.  
Barnum, Herbert M., '48, Nov. 18, 2019.  
Beale, Luther Alton, '48, May 27, 2001.  
Bull, Frank J., '48, October 9, 2014.  
Gordon, Harry, '48, January 29, 2020.  
Tyson, Jack J., '48, April 6, 2012.  
Vaughn, Wilton Wells, '48, June 23, 2005.  
Hampton, Mark G., '49, February 28, 2015.  
Collat, Lewis Byck, '50, February 24, 2020.  
Erb, W. Brewster, '50, February 15, 2018.  
McKown Jr., William E., '50, March 4, 2006.  
Saffold, Thomas N., '50, July 18, 2019.  
Bailey, James C., '51, June 8, 2020.  
Allen, Robert R., '52, June 19, 2017.  
Avery Jr., Hugh Erton, '52, no details.  
Collins, Louis H., '52, October 20, 2006.  
Gearing, Charles E., '52, May 1, 2020.  
Slover Jr., Vassel Roy, '52, no details.  
Smith, Abner Gene, '52, January 11, 2021.  
Esral, Abraham A., '53, August 30, 2018.  
Price, Frank E., '53, January 2, 2018.  
Childress, Guion C., '54, December 27, 2006.  
Dancy Jr., Robert C., '54, May 31, 2015.  
Frischia, Joe, '54, March 22, 2006.

Johnson, Lynwood Albert, '55, Dec. 18, 2019.  
Lancaster, John Ellery, '55, February 1, 2019.  
Hinds Jr., Edmond F., '56, Jan. 25, 2008.  
Anderson Jr., William K., '57, June 22, 2009.  
Paisley, Clyde Albert, '58, Dec. 16, 2006.  
Kicklighter, Ray Samuel, '59, no details.  
Davis, John Hardin, '62, November 19, 2006.  
Mullis, Kary Banks, '66, August 7, 2019.  
Steffen, Robert Wayne, '73, Nov. 18, 2004.  
Lynch, James Edward, '77, March 4, 2021.

## IDAHO

### ALPHA ID A

Saroya, Farooq Ahmed, '84, April 28, 2009.

## ILLINOIS

### ALPHA IL A

O'Brien, John S., '41, May 26, 2000.  
Houbolt, Neal, '44, March 15, 2014.  
Mueller, Carl Freeman, '44, August 13, 2019.  
Skale, Arthur John, '44, February 8, 2002.  
Uttich Jr., August Joseph, '44, July 16, 2006.  
Hennig, Robert W., '46, August 22, 2017.  
Overbey, Ernest Edwin, '48, no details.  
Schneider, Robert Charles, '48, no details.  
Hennegan, Neal E., '49, September 4, 2005.  
Turner, Harrison C., '49, May 23, 2019.  
Mack, Robert B., '50, September 6, 2017.  
Baty, Marion William, '51, January 31, 2001.  
Linder, James Alvin, '51, Sept. 26, 2005.  
Parisot, Paul E., '52, March 9, 2006.  
Dooley, Charles Terry, '55, Sept. 27, 2020.  
Krause, Alfred Werner, '56, March 23, 2007.  
Bodine, Alan George, '57, Sept. 19, 2010.  
Tinkler, Jack Donald, '58, February 5, 2020.  
Wu, Edward M., '60, June 3, 2009.  
MacGillvray, Daniel Frank, '67, no details.  
Hunninghaus, Roy E., '70, July 5, 2008.

### BETA IL B

Levine, Seymour, '45, December 13, 2019.  
Percival, Murray Andrew, '45, no details.  
Hoffman, Leonard Morris, '48, June 10, 2003.  
Ockerlund, Frank G., '49, July 9, 2002.  
Seidler, Clifford D., '49, September 3, 1987.  
Arima, John Takashi, '50, July 29, 2017.  
McGrath, Robert Thomas, '58, March 5, 2021.  
McDaniel, Dale Eugene, '61, Dec. 12, 2020.  
Petrovic, Joseph John, '62, July 27, 2020.  
Simek, Ronald Robert, '87, Dec. 8, 2010.

### GAMMA IL Γ

Harza, Richard D., '44, June 21, 2019.  
Brodwin, Morris Ellis, '46, Nov. 4, 2014.  
Dougherty, William S., '47, Dec. 27, 2017.  
Young, Gordon E., '47, July 20, 2016.  
Pelling Jr., Lloyd L., '48, October 8, 2014.  
Andrae, George, '49, June 10, 1998.  
Boesen, George F., '49, no details.  
Bulovic, Bozdar, '49, April 22, 2020.  
Cantrell, Harry Neill, '49, July 18, 2004.  
Johnson, Eugene D., '50, Nov. 19, 2013.  
Silverblatt, Charles Eddy, '52, Dec. 27, 2017.  
Hemmenway, Stuart Foxhall, '56, no details.  
Klingeman, Peter Clayton, '57, Oct. 15, 2018.  
Nowak, Edwin James, '58, Nov. 16, 2009.  
Langford, Gregory Jay, '73, Feb. 26, 2021.

## INDIANA

### ALPHA IN A

Ebling, William Henry, '43, May 10, 2008.  
Sutherland, Don R., '43, August 4, 2002.  
Hames Jr., William Arthur, '44, July 5, 2008.  
Vriens, Gerald N., '44, March 9, 2010.  
Sedlacek, Warren Richard, '45, Jan. 28, 2020.  
Wilcox, Dwight Douglas, '45, no details.  
Bechtel Jr., Stephen D., '46, March 15, 2021.  
Gelder, Thomas Foster, '46, August 15, 2006.

Kugar, George, '47, March 1, 2000.  
Carlson, Robert L., '48, February 25, 2017.  
Wood, Leonard R., '48, February 20, 2018.  
Clark, Clarence Benson, '49, Oct. 17, 2007.  
Coleman, James Samuel, '49, no details.  
Mihalka, Louis Leroy, '49, no details.  
Mopps, William Martin, '49, July 17, 2002.  
Pribble, Richard Carlton, '49, Feb. 16, 2001.  
Fusillo, Pasquale, '50, no details.  
Jones, Robert Lewis, '50, July 29, 2006.  
Smith, James G., '50, July 15, 2016.  
Vander Velde, Wallace, '51, May 16, 2019.  
Barany, James W., '53, November 7, 2011.  
Dowden, Wayne Marion, '53, June 10, 2020.  
Milford, Arthur Lee, '54, April 7, 2003.  
Neddenriep, Donald Orie, '55, no details.  
Sharp, Maurice Leon, '56, August 5, 2005.  
Stitz, Donald W., '58, September 10, 2020.  
Usab, William James, '58, Nov. 11, 2012.  
Bloom, Joseph Morris, '59, May 8, 2018.  
Colville, James, '59, January 5, 2021.  
McAllister, Gene Robert, '59, Oct. 18, 2009.  
Givan, Robert Lawrence, '60, Oct. 3, 2003.  
Glanville, Lewis Kingsbury, '60, no details.  
Livingston, Julian R., '60, March 28, 2021.  
Nicklas, John Louis, '61, May 5, 2021.  
Prezbindowski, David L., '61, Feb. 22, 2002.  
Schilling, Robert Allen, '63, no details.  
Sudkamp, Robert F., '67, June 19, 2009.  
Smith, Joseph Leland, '68, October 8, 2020.  
Timm, Stuart Philip, '68, no details.  
Hill, Michael Romeyne, '69, Nov. 28, 2002.  
Surfus, Roger Allen, '70, October 10, 2007.  
Baker, Daniel Herbert, '72, Feb. 26, 2016.  
Todd, Douglas Allen, '73, April 18, 2011.  
Egan, Gerald Patrick, '74, January 10, 2021.  
Montgomery, Robert Elba, '74, Jan. 13, 2021.

### BETA IN B

Moore, John Allan, '34, no details.  
Ray, Robert William, '53, March 1, 2021.  
Ulbrich Jr., Erwin August, '54, Sept. 8, 2018.  
Jardine, John William, '59, no details.  
Holcomb, Neil Allen, '89, May 15, 2009.

### GAMMA IN Γ

Colligan, Jerome Arthur, '61, Feb. 26, 2021.  
Keenan, William Andrew, '62, Sept. 25, 2010.

### EPSILON IN E

Barton, Douglas Arthur, '50, no details.

## IOWA

### ALPHA IA A

Hobbs, John Morris, '42, February 24, 2016.  
Floren, Franklyn B., '47, June 22, 2004.  
Gates, Leslie Dean, '47, September 12, 2005.  
Mannheimer, Richard S., '48, Feb. 6, 2006.  
Petersen, Jack Hubert, '48, January 1, 2004.  
Senger, James H., '48, February 4, 2004.  
Turner, Eugene Linden, '48, Sept. 22, 2005.  
Hochstetler, Virgil E., '49, March 18, 2021.  
Shafer, Don Phillip, '49, no details.  
Swanberg, Robert Harold, '51, Jan. 19, 2007.  
Gallagher, Richard F., '59, April 4, 2021.  
Peterson, David Bruce, '59, no details.  
Tiffany, Floyd Lynn, '59, April 23, 2004.  
Goben, Charles Alvin, '60, Nov. 16, 2002.  
Wernecke, Frank William, '63, no details.  
Smith, Terry Wayne, '70, March 28, 2008.  
Pugh Jr., Julian Lee, '72, July 1, 2008.  
Freerksen, Donald Lee, '84, May 17, 2002.

### BETA IA B

Buck, James R., '52, no details.  
Tranberry, Robert James, '62, April 17, 2000.  
Houser, Edwin Dean, '63, March 22, 2004.

## KANSAS

### ALPHA KS A

Mankin Jr., George Richard, '43, no details.  
Benner, Arthur H., '44, no details.  
Miller, Richard D., '44, no details.  
Arnold, Eugene K., '45, April 19, 2020.  
Brown, Leonard Charles, '45, Aug. 2, 2011.  
Day, Robert Grummell, '46, no details.  
Nelson, Richard Francis, '46, April 22, 2021.  
Kipp, Robert Almy, '52, no details.  
Brackmann, Richard T., '53, June 3, 2009.  
Swenson, Donald Otis, '63, May 8, 2020.  
Williard, Mark Allen, '69, no details.  
Schueler, Daryl James, '83, no details.

## KENTUCKY

### ALPHA KY A

Dickson, Murray Franklin, '51, no details.  
Field, Roger Francis, '51, April 4, 2021.  
Sturm Jr., Devere A., '61, Aug. 9, 2009.

### BETA KY B

Lally, Frank Edward, '48, no details.  
Black, Leslie Edward, '50, February 12, 2021.  
Hauenstein, Bruce Robert, '76, Jan. 19, 2021.

## LOUISIANA

### ALPHA LA A

Eckert, William John, '49, July 9, 2002.  
Guion, Henry Donelson, '49, no details.  
Guynes, Raleigh Edwin, '49, August 1, 2005.  
Beeson, Aubrey Edward, '50, Feb. 9, 2000.  
Scribner, Coy Jewel, '54, August 3, 2011.  
Oliver, James Madison, '55, Sept. 2, 2005.  
Henry, Joseph L., '60, no details.

### BETA LA B

Beadle, Robert Gordon, '48, April 15, 2021.  
Brinkmann, Frederick J., '56, March 14, 2021.  
Rasch, Philip John, '60, April 27, 2021.  
Smith, Louis Oscar, '68, no details.

### GAMMA LA Γ

Beaver, Charles Eugene, '61, Jan. 4, 2006.  
Jason, Paul Richard, '66, November 9, 2008.

### DELTA LA Δ

Lopez, Charles Ray, '55, no details.  
Vinet Jr., Percy Bernard, '57, April 29, 2021.

## MAINE

### ALPHA ME A

Edgecomb, Raymond H., '41, Jan. 30, 2001.  
Moore, Randolph E., '49, April 18, 2021.  
Nardone, Anthony B., '49, June 30, 2010.  
Packard, Richard Darrell, '50, May 15, 2011.

## MARYLAND

### ALPHA MD A

Prock, Alfred, '51, April 5, 2019.  
Walch Jr., Rudolph Carl, '55, June 22, 2007.  
Foster, David Revere, '80, no details.

### BETA MD B

Pierce Jr., Edward R., '43, no details.  
Maxwell, Jerome Leonard, '47, July 24, 2000.  
Bouche, Stuart Henry, '50, Dec. 24, 2020.  
Weigel Jr., Charles Adolph, '50, no details.  
Sykes Jr., Horace F., '54, August 31, 2004.

## MASSACHUSETTS

### ALPHA MA A

Southworth, Raymond W., '43, Jan. 22, 2000.  
Osborn, John Cyrus, '46, October 12, 2008.  
Smith, Jeremy Warren, '49, no details.  
Baker, Robert Earle, '52, April 6, 2008.

### BETA MA B

McDonough, James Oltman, '43, no details.  
Flood, David P., '45, March 10, 2000.  
Larkin, William Joseph, '48, no details.

# CHAPTER ETERNAL

Continued



New York Zeta '53  
**Kenneth C. Kelly**  
February 27, 2021

*He was awarded 12+ patents for innovations in radar and antenna technology, which contributed to the race to the moon and helped NASA communicate with Mars rover.*

## BETA MA B

Brooks, Donald Henry, '49, October 12, 2019.  
Rowe, Harrison Edward, '49, Oct. 18, 2018.  
Sutherland, John Bond, '49, Dec. 14, 2001.  
Dobroth, Richard Edward, '50, Aug. 13, 2004.  
Kendall, Robert Edward, '50, Feb. 1, 2021.  
Hendrickson, Adolph Carl, '52, April 25, 2009.  
Gouse Jr., S. William, '53, no details.  
Rohner, Robert, '54, September 3, 2000.  
Bowen, Jewell Ray, '56, no details.  
Whitehead, Clay Thomas, '60, July 23, 2008.  
Nelson, John Garnett, '61, no details.  
Keenan, James R., '63, October 19, 2003.  
Kurth, Richard Robert, '64, no details.  
Unemori, Alan Lloyd, '74, December 5, 2019.

## DELTA MA Δ

Caruso, William Joseph, '48, Dec. 31, 2002.  
Borrebach, Edwin John, '50, March 14, 2020.  
Hirvi, Henry Eugene, '52, February 28, 2021.

## EPSILON MA E

Kanter, Manuel A., '44, February 6, 2004.  
Craig, Edward Joseph, '48, August 12, 2015.  
Brazil, John J., '50, February 13, 1988.  
Wang, Daniel I-Chyau, '59, no details.  
Sarno, John Stephen, '65, January 4, 2001.  
Loud, Arthur John, '66, June 13, 2016.  
Waid, Philip Sherwood, '69, June 3, 2007.  
Reed Jr., Emerson C., '77, April 16, 2010.  
Mulholland, Herbert F., '78, Nov. 19, 2009.

## ZETA MA Z

Bennett, Paul Edmond, '50, July 16, 2012.  
D'Urso, Stephen F., '55, Aug. 23, 2010.  
Clough, Stuart B., '59, no details.  
Anthony III, James W., '65, Feb. 18, 2016.  
Dean, Kenneth H., '79, August 20, 2006.  
Hashem, Peter Paul, '83, Sept. 11, 2001.  
Southworth, Kenneth M., '90, July 3, 2011.

## ETA MA H

Davis, James P., '71, no details.

## MICHIGAN

### ALPHA MI A

Maliila, William Alexis, '56, October 26, 2020.  
Barber, Robert J., '57, no details.

### BETA MI B

Feldscher, John C., '43, December 21, 2008.  
Freeborn, John Chester, '49, Feb. 1, 2000.  
Peterson, Warren B., '52, January 3, 2018.  
Lutze, Donald Luis, '53, October 12, 2016.  
Hitch, Robert Duaine, '54, October 9, 2004.  
Haralson, Ray Herbert, '57, Sept. 4, 2006.  
Hazebrook, Daniel Wesley, '59, no details.  
Heintz, Roger E., '60, June 30, 2017.  
Newsted, William Joseph, '61, June 21, 2005.  
Tripp, David Lawrence, '66, Dec. 25, 2005.  
Hamm, David Alan, '69, February 25, 2006.

### GAMMA MI Γ

Weidig, Thomas Albert, '41, no details.  
Chiu, Herman Shin-gee, '43, no details.  
Pagel, Duane Arthur, '43, June 14, 2013.  
Wetheridge, John M., '43, April 27, 2003.  
Ling Jr., Daniel Seth, '44, no details.  
Osgood, Harold William, '45, June 14, 2019.

Roberts Jr., Spencer W., '45, June 18, 2013.  
Smith, Robert Harvey, '48, March 4, 2003.  
Iler, Gerald Walter, '49, December 29, 2020.  
Schultz, Lloyd Ellman, '49, Dec. 7, 2020.  
Dean, Clifford Allan, '50, April 11, 2020.  
Robertson, James Robertson, '50, no details.  
Loosme, Oskar, '51, October 24, 2005.  
Outz, Allan Harry, '51, no details.  
Roof, Richard Rundel, '51, February 28, 2021.  
Jorgensen, George Nels, '52, Sept. 8, 2009.  
Mosher, Harry Denn, '52, no details.  
Nelson, Merle A., '53, December 22, 2020.  
Tomlinson, Charles L., '55, August 15, 2013.  
Maki, William John, '58, November 22, 2020.  
Johnson, David R., '59, July 11, 2013.  
Schroeder, David Lee, '61, Feb. 14, 2003.  
Lawser, John Jutten, '63, July 14, 2020.  
Clapp, William Arthur, '64, Feb. 10, 2021.  
Haley, James Lewis, '69, August 6, 2001.  
Livermore III, Jesse L., '69, Feb. 26, 2006.  
Popovic, Michael Milan, '77, Nov. 19, 2010.  
Kirchoff, Dennis James, '79, Nov. 23, 2020.

### DELTA MI Δ

Palka, Leonard F., '74, no details.

### EPSILON MI E

Cato, George Alfred, '46, no details.  
Afendykiw, Marko, '57, May 21, 2002.  
Kolodziej, David G., '59, March 15, 2021.  
Hamilton, Robert Laurence, '75, no details.

### ZETA MI Z

Throop, James Warren, '58, Nov. 22, 2005.

### ETA MI H

Polkinghorne, Bruce R., '50, no details.  
Baracos, Nicholas, '53, August 5, 2005.

## MINNESOTA

### ALPHA MN A

Mooers, Alden John, '44, November 22, 2001.  
Belanger, Philip J., '48, May 20, 1977.  
Wolfgram, Rodger Carl, '50, June 22, 2014.  
Smith, Mark William, '58, no details.  
Long, Wayne Richard, '61, April 3, 2002.  
Ziemer, Rodger Edmund, '61, Jan. 9, 2021.  
Stafne, Scott Andrew, '95, February 7, 2013.

### MISSISSIPPI

#### ALPHA MS A

Jones, Edward Elkanah, '41, May 16, 2000.  
Welch, Harold Joseph, '42, Sept. 22, 2006.  
Fortenberry, Robert E., '47, Sept. 2, 2016.  
Stack, Gerald Gene, '50, October 25, 2007.  
Davis Sr., Herman Keith, '51, Oct. 27, 2019.  
Crisco, Alvin Leroy, '55, March 29, 2021.  
Jacks, Jerry Carpenter, '57, Feb. 3, 2018.  
Baughman, Hubert Dael, '59, Dec. 12, 2020.  
Vander Veen, Arthur Alvin, '62, Aug. 26, 2010.  
Unland Jr., Harold Don, '64, May 20, 2008.  
Gilbert, Thomas J., '73, March 3, 2021.  
Rheuark, Elton Bruce, '88, June 11, 2004.

### MISSOURI

#### ALPHA MO A

Litzsinger, James Richard, '62, April 19, 2021.  
Crunk, Steve Leroy, '70, no details.

## BETA MO B

Berndt Jr., Joseph P., '43, April 16, 2012.  
Helberg, Warren W., '44, July 22, 2016.  
McKelvey, James Morgan, '45, Nov. 13, 2019.  
Bay, Robert D., '49, November 15, 2020.  
Booth, Robert Cloud, '49, October 8, 2000.  
Hopkins, James Speed, '49, Oct. 22, 2007.  
Frazier, Richard M., '50, January 26, 2016.  
Kronmueller, Robert L., '51, Feb. 13, 2018.  
Peterson, Forest Robert, '51, Jan. 15, 2013.  
Lentz, Thomas H., '52, June 5, 2020.  
Faulkner, William Harrison, '54, no details.  
Jones, Richard Lee, '55, May 11, 2009.  
Kaiser, Richard Lee, '55, May 30, 2019.  
Minton, Robert Charles, '58, May 31, 2013.  
Poarch, James William, '60, Feb. 9, 2010.  
Henry, Kenneth Wesley, '61, July 3, 2013.  
Felch, James Francis, '64, no details.  
Woodbury, Franklin B., '66, April 19, 2021.  
Long, George Louis, '68, February 23, 2002.  
Besterfeldt Jr., Daniel Earl, '69, Oct. 16, 2011.  
Roberts II, Darrell Edward, '95, Sept. 25, 2018.

## GAMMA MO Γ

Feichtinger, Carl Anton, '41, no details.  
Kiesel, George F., '43, January 7, 2007.  
Weber, Walter Herman, '48, August 15, 2020.  
Wuerthenbaecher Jr., Harry E., '48, Jan. 9, 2000.  
Eberle, Charles Edward, '49, March 8, 2021.  
Hermeling Jr., Gilbert C., '49, April 11, 2012.  
Lopatin, Albert, '49, no details.  
Thompson, George Stuart, '49, April 10, 2016.  
Koch, Donald M., '52, August 12, 2013.  
Tegtmeyer, Rene D., '56, June 3, 2009.  
Franke, Ralph Alvin, '58, October 7, 2011.  
Metzger, Charlotte Ann, '83, no details.

## MONTANA

### ALPHA MT A

Shennum, Robert Herman, '44, Jan. 17, 2005.  
Waterman, Richard Gordon, '54, May 9, 2006.  
Cok, Steven Peter, '58, October 1, 2008.  
Hart, William Frank, '67, no details.

### BETA MT B

Weatherhead, Murray D., '85, Jan. 19, 2021.

## NEW HAMPSHIRE

### ALPHA NH A

Cope, Howard Wesley, '50, no details.  
Rushforth, Calvin, '51, August 13, 2007.  
Hutchins, C. Kenneth, '53, August 4, 2020.

## NEW JERSEY

### ALPHA NJ A

Verner, David Aland, '43, September 3, 2007.  
Wittke, James P., '49, October 31, 1987.  
Lynch, Robert B., '50, February 18, 2018.  
Fernandez, Santiago Oscar, '54, Jan. 5, 2003.  
Mach, Richard Emil, '55, Sept. 21, 2013.  
Tondo, Dominic Robert, '74, Sept. 29, 2019.

### BETA NJ B

Gaston, John H., '44, March 28, 2010.  
Mendel, Jerome, '49, May 27, 2009.  
Petrick, William R., '49, August 13, 2017.  
Reynolds, Charles Henry, '49, Jan. 10, 2012.  
Salvin, Robert, '49, February 6, 2012.

Birnie, Dunbar Paul, '50, May 24, 2018.  
Yu, Zhixin Sam, '86, July 6, 2011.

#### **GAMMA NJ Γ**

Dehn, Rudolph Albert, '41, Feb. 24, 2021. *cent*  
Bogner, Irving, '46, no details.  
Gieser, Herbert Peter, '49, Nov. 12, 2011.  
Harris, Spencer, '50, no details.  
Kelleher, James Patrick, '50, no details.  
Siegel, Sherman Howard, '50, Dec. 10, 2006.  
Barner, Herbert Eugen, '58, Nov. 26, 2003.  
Howard, John Wesley, '59, May 7, 2021.  
Meisinger Jr., Albert E., '62, Sept. 8, 2008.  
Cybulsky, Kenneth J., '75, June 21, 2000.  
Stipulkowski, Frank Edward, '78, Feb. 26, 2002.

#### **NEW MEXICO**

##### **ALPHA NM A**

Wildenstein, Kevin Lynn, '87, Nov. 2, 2018.

#### **NEW YORK**

##### **ALPHA NY A**

Braden, Charles H., '46, November 20, 2004.  
Sciorra, Albert F., '48, May 20, 2008.  
Nelridge, Edwin W., '50, April 24, 2008.  
Stamm, Robert Calvin, '50, no details.  
Sachs, Benjamin K., '52, August 16, 2000.  
Faller, Ruth, '68, February 7, 2018.

##### **BETA NY B**

Foster, Theodore George, '41, no details.  
Holstein, Alexander Edwin, '45, Oct. 3, 2020.  
Leverett, John Edgar, '46, March 24, 2010.  
Weitz, Paul, '49, May 12, 2015.  
Taylor, Lloyd Winston, '50, August 8, 2004.  
Davenport, James Bryant, '60, Oct. 13, 2008.  
Jaskowiak, Walter A., '90, no details.

##### **GAMMA NY Γ**

Martz, Robert W., '42, November 16, 2014.  
Sutter, Walter E., '45, March 15, 2013.  
Bookhop, William A., '47, June 20, 2009.  
Louden, Victor J., '48, no details.  
Bohan, Peter John, '50, no details.  
Donnelly, John Leo, '50, May 16, 2003.  
Spiegel, Walter Joseph, '50, no details.  
Berwanger, George E., '51, Feb. 27, 2001.  
Brownell, Everett F., '51, April 6, 2019.  
Fowler, Joseph Charles, '51, Nov. 15, 2008.  
Gil Jr., Joseph, '51, February 12, 2009.  
Rote, Warren Hall, '51, June 23, 2008.  
Schroeder, William E., '51, May 6, 2019.  
Salani, John Michael, '52, May 15, 2016.  
Barnikel, Peter John, '54, no details.  
Sabian, Gerald Erwin, '57, no details.  
York, Robert Kenneth, '57, Feb. 13, 2011.  
Sherman, John Delano, '59, Feb. 12, 2006.  
Cosel, Michael A., '67, no details.  
Moynihan, Cornelius T., '85, Dec. 22, 2015.

##### **DELTA NY Δ**

Eydenberg, Morton, '47, no details.  
Koup, Alfred Leyi, '47, November 11, 2005.  
Newhard, Jack Earl, '52, April 22, 2014.

##### **EPSILON NY E**

Rabins, Michael Jerome, '53, Sept. 30, 2007.  
Schreter, Robert E., '53, July 29, 2015.  
Flaherty, Robert, '57, April 17, 2006.  
Pilger, Allan Barry, '60, no details.

##### **ZETA NY Z**

Gilbert, Michael, '49, December 3, 2007.  
Kelly, Kenneth Constantine, '53, Feb. 27, 2021.  
Engelson, Irving, '64, April 21, 2020.  
Weick, John Myron, '64, no details.

##### **ETA NY H**

Metzger, Charles Ottman, '45, Feb. 2, 2020.  
Chaloff, Charles J., '53, August 9, 2000.

##### **THETA NY Θ**

Scallion, Richard, '51, no details.

#### **IOTA NY I**

Neidorf, Edward, '51, September 21, 2015.  
Le Mée, Jean, '59, June 28, 2020.

Yoshida, Tadashi, '71, May 23, 2011.

Lazar, Eugen Gabriel, '96, Sept. 11, 2001.

#### **KAPPA NY K**

Lee, Robert Edward, '54, May 7, 2015.

#### **LAMBDA NY Λ**

Nicolson, Richard Edgar, '42, Oct. 16, 2005.  
Mahrous, Haroun, '43, November 9, 2018.  
Drumheller, Curtis Herbert, '79, no details.  
Posner, Michael E., '83, March 7, 2011.

#### **MU NY M**

Peek, Nelson Abram, '59, February 28, 2021.  
Dembowski, Peter Vincent, '67, no details.

#### **NORTH CAROLINA**

##### **ALPHA NC A**

Porter, Robert E., '42, June 15, 2008.  
Hedgepeth, Richard Louis, '49, no details.  
Moore Jr., Philip St. John, '49, Feb. 22, 2010.  
Kiser Jr., Robert M., '50, March 13, 2021.  
Long, Edward Styers, '53, February 17, 2013.  
Boone, Dan Hathaway, '60, August 16, 2009.  
Massengill Jr., Ransom J., '61, Aug. 10, 2003.

##### **GAMMA NC Γ**

Bechtold, George, '48, June 21, 2008.  
Wilmer, William B., '51, March 28, 2011.  
Gnuse, Harmon Thomas, '60, Jan. 20, 2019.

##### **DELTA NC Δ**

Kidd Jr., Lawrence Clark, '75, Sept. 14, 2016.

#### **NORTH DAKOTA**

##### **ALPHA ND A**

Larson, Alden C., '41, July 28, 2005.  
Beglau, Russell Frederick, '48, Feb. 13, 2011.  
Ostby, Marvin Ernest, '50, March 12, 2003.  
Kvern, Clifford Roy, '58, February 12, 2000.  
Davenport, Daryl D., '62, no details.

#### **OHIO**

##### **ALPHA OH A**

Dana Jr., Arthur W., '42, August 15, 1997.  
Serafini, Tito Thomas, '55, Nov. 17, 2017.  
Pelech, Ivan, '56, no details.  
Hantman, Robert Gary, '62, Dec. 18, 2020.  
Topich, James Anthony, '70, no details.

##### **BETA OH B**

Cherry, Paul Emerson, '49, no details.

##### **GAMMA OH Γ**

Arnold, Donald Smith, '42, Nov. 29, 2010.  
Weatherly, Thomas Levi, '47, March 10, 1982.  
Conklin, Charles W., '48, September 21, 2020.  
Reif, Robert Bruce, '48, November 11, 2007.  
Ekey, David Clifton, '50, no details.  
O'Neill, John T., '50, September 24, 2004.  
Wolansky, John, '50, July 10, 2004.  
Craver, Joseph N., '51, September 4, 2016.  
Gossick, Lee Van, '51, April 12, 2005.  
McClure Jr., James C., '51, February 1, 2013.  
Burley, Zane Wahl, '52, no details.  
Reveal, Charles A., '52, no details.  
Dyer Jr., Chalmer James, '54, no details.  
Fenton, Robert Earl, '57, December 28, 2020.  
Durnell, Don Dale, '61, no details.  
Riegsecker, Darold Gene, '62, July 1, 2009.  
Davis, Terry Lee, '63, January 30, 2000.

##### **DELTA OH Δ**

Talley, Vincent Chester, '50, March 9, 2021.  
Hivnor, Robert Keith, '62, July 1, 2002.  
Daubenmire, Richard Leo, '63, June 30, 2017.

##### **EPSILON OH E**

North, Charles Raymond, '51, no details.  
Hersch, Martin, '56, March 8, 2021.

#### **THETA OH Θ**

Reeves, Albert Harvey, '67, Dec. 6, 2006.

#### **OKLAHOMA**

##### **ALPHA OK A**

Kirkwood, Thomas Carter, '46, Dec. 1, 2020.  
Ward Jr., Howard C., '46, August 13, 2019.  
Reudelhuber, Frank Otto, '47, no details.  
McPherson, James I., '52, June 25, 2012.  
Cagle, Billy Bon, '53, no details.  
Burch, Welton Harris, '60, Sept. 22, 2004.  
Soder Jr., Keats Endymion, '65, July 15, 2016.  
Joshi, Satyapriy, '86, no details.

##### **GAMMA OK Γ**

Reid Jr., Karl Nevelle, '56, April 14, 2021.  
Rodkey, David Allen, '78, December 15, 2020.

#### **OREGON**

##### **ALPHA OR A**

Koch, Norman Dennis, '44, June 13, 2011.  
Eddy, Lee Ben, '49, February 11, 2004.  
Clausen, Paul Timothy, '69, May 13, 2003.  
Young, Roger Alan, '75, May 30, 2007.

#### **PENNSYLVANIA**

##### **ALPHA PA A**

Ferrell, Blaine Donald, '43, Nov. 5, 2007.  
Moretz, Lawrence A., '47, May 28, 2009.  
Reber, Luther, '50, September 25, 2009.  
Bowman, James I., '51, June 17, 2004.  
Parks, William Frank, '60, Nov. 1, 2020.

##### **BETA PA B**

Garcia Jr., Bert Howard, '41, July 13, 2000.  
Robinson McGill, Carolyn E., '47, Jan. 7, 2008.  
Junk Jr., William A., '48, November 25, 2014.  
Whittow Jr., Clarence M., '50, Oct. 14, 2014.  
Gilbert, Allen Ward, '59, no details.  
Dietz, Mark Steven, '80, December 25, 2019.

##### **GAMMA PA Γ**

Mallen, Stanley Edward, '42, Feb. 14, 2012.  
Kopchik, Richard Michael, '63, Oct. 11, 2020.  
Kennedy, Walter Leroy, '66, October 20, 2005.

##### **EPSILON PA E**

Helfrich Jr., Emory W., '41, January 15, 2005.  
Forsyth, Robert Stuart, '52, March 21, 2021.

##### **ZETA PA Z**

Zahn Jr., Herman S., '41, May 22, 2010.  
Cullin, Hugh James, '47, July 17, 2005.  
Gottshall, Earl S., '47, no details.  
Logan, Harold M., '47, no details.  
Leidigh, Charles Richard, '49, no details.  
Githens, John Arthur, '51, April 17, 2005.  
Morris, Robert Louis, '55, January 23, 2021.  
Halligan, James William, '59, no details.  
Reis, George C., '59, June 21, 2009.  
Walker, William Joseph, '61, June 21, 2002.  
Struckman, Russell W., '64, March 8, 2021.  
Weaver, Harry E., '68, no details.

##### **ETA PA H**

Ketchledge, John Strain, '49, July 19, 1990.  
Van Kirk, Theodore J., '49, July 28, 2014.  
Emig, Gale LeVerne, '63, January 28, 2005.

##### **THETA PA Θ**

Clarke, Edgar Whitney, '37, Dec. 7, 2012.  
McNichol, William J., '50, Sept. 28, 2000.  
Barton, Ronald Winston, '64, May 22, 2008.

##### **IOTA PA I**

Milhou, Thomas Enoch, '68, August 8, 2020.

##### **KAPPA PA K**

Bennett, John Charles, '45, no details.  
Duke III, Alan Louis, '46, April 3, 2011.

# CHAPTER ETERNAL

Continued



South Carolina Alpha '49

**Bevan W. Brown Jr.**

March 29, 2021

*Served as deputy manager of the Office of Natural Resources, retired as director of air & water resources, and received 1986 Professional Engineer of the Year, all at TVA.*

## RHODE ISLAND

### ALPHA RI A

Getter, Gustav, '47, October 19, 2020.  
Grodzki, Jan Eugene, '53, no details.  
Olstad, Walter Ballard, '54, no details.

### BETA RI B

Ferris, Vincent James, '61, February 8, 2003.  
Nugent, Kham Xuan, '83, June 23, 2005.

## SOUTH CAROLINA

### ALPHA SC A

Nowack, Robert Francis, '48, Feb. 4, 2020.  
Brown Jr., Bevan Wood, '49, March 29, 2021.  
Gambrell, Harvey D., '53, Nov. 13, 2020.  
Rampey, Fred D., '58, May 29, 2013.  
Hannah, James William, '69, June 6, 2006.  
Roesel, Helen Anne, '79, no details.

### BETA SC B

Barnett, Norman Eugene, '67, Jan. 26, 2009.

### GAMMA SC Γ

Smith, Harrison Stewart, '50, Jan. 15, 2020.  
Lancaster, Fred Lightsey, '56, March 1, 2021.  
Baiden III, Arthur H., '62, March 8, 2021.

## TENNESSEE

### ALPHA TN A

Sturm, Melvin Sidney, '44, March 1, 2021.  
Russell, Dallas Wilson, '47, June 1, 2000.  
Wilder, Burton Andrews, '48, July 21, 2019.  
Mayes Jr., Thomas L., '49 April 2, 2019.  
Swearingen, Charles Nathan, '49, Jan. 5, 2005.  
Null, Harold R., '50, February 3, 2016.  
Nunno, Vincent James, '50, no details.  
Ziemke, Myron Carl, '50, no details.  
Pearson Jr., John Frederick, '52, no details.  
Cantrell, Mahlon Evander, '54, Dec. 2, 2001.  
Lundin, Carl Dean, '57, March 30, 2021.  
Dunwoody Jr., Samuel A., '60, June 7, 2004.  
Wooden, Lewis Phillip, '66, April 2, 2012.  
McDavid, James Michael, '68, July 27, 2006.

### BETA TN B

Schnelle Jr., Karl Benjamin, '52, Nov. 7, 2019.

### GAMMA TN Γ

Tramel, Winket Jefferson, '63, March 2, 2021.

## TEXAS

### ALPHA TX A

Ramey, Madison L., '41, September 12, 2017.  
Chenault, Woodford S., '42, Sept. 5, 2003.  
Blakeney, Sam Wilson, '43, April 11, 2014.  
Mikovsky, Francis George, '47, July 22, 2011.  
Groppe, Ocee K., '48, May 31, 2002.  
Mason, Edward Anthony, '48, Feb. 2, 2013.  
Bateman, John Mays, '49, April 13, 2002.  
Scott, James Corbett, '49, August 16, 2019.  
Wilkins Jr., Guy, '49, April 26, 2021.  
Farr, Archie Pence, '50, no details.  
Fugate, Leonard C., '50, October 10, 2012.  
Pickett, Christiancy, '50, no details.  
Warren Jr., Walter Marvin, '50, Sept. 20, 2010.  
Wirtz Jr., Robert Lewis, '50, Sept. 19, 2004.  
Turnage Jr., Rodger Elmo, '51, March 2, 2009.  
Johnson, Winston Coleman, '57, no details.  
Grassl, Alphonse Joseph, '58, March 6, 2021.  
Spangler, Jack Gorham, '59, July 26, 2006.

Hooper Jr., William Coggin, '61, Dec. 1, 2003.  
Morrison, Karen Michele, '72, June 27, 2008.  
Olander, Ralph Dean, '73, November 1, 2005.

### BETA TX B

Bell, Forrest William, '42, no details.  
Hays Jr., James Sparks, '42, no details.  
Pruet, Ronald B., '49, November 20, 2004.  
Kennamer, Homer Gross, '52, no details.  
Pinson, John Carver, '52, September 3, 2017.  
Crossley, Walter Charles, '53, April 22, 2003.  
McNeese, Leonard E., '57, April 15, 2021.  
Penton, Allen Price, '57, no details.  
Fanning, Norris Lynn, '59, March 27, 2021.  
Tyler, Ralph Lester, '60, no details.  
Violette, Ronald L., '64, January 20, 2019.

### GAMMA TX Γ

Gillespie Jr., Warren, '41, Dec. 19, 2002.  
Hoffman, Walter Martin, '50, Jan. 9, 2018.  
Jacobson, Marcus J., '52, April 12, 2019.  
Dalton Jr., Robert Lowry, '54, Aug. 23, 2005.  
Massey, Richard Preston, '54, Dec. 4, 2020.  
Pruett, Roderick C., '74, March 25, 2003.

### DELTA TX Δ

Brunow, Charles L., '47, no details.  
Berthelot, Bryon Wayne, '48, Nov. 8, 2010.  
Stone, Robert Melvin, '48, no details.  
Copeland, Theodore Loraine, '49, no details.  
Damrel, Robert Lamar, '49, no details.  
Degarmo, John Hall, '49, no details.  
McCleskey, Hugh Wren, '49, January 8, 2001.  
Moss, Jon Thomas, '49, January 18, 2008.  
Wilson, Edward Lea, '49, October 21, 2007.  
Wornat, Richard Oscar, '49, March 25, 2021.  
Merrell Jr., Ernest Earl, '50, no details.  
Minton Jr., Fred, '50, October 12, 2006.  
Kadel, James Orville, '51, no details.  
Pitzer Jr., Ernest Theodore, '51, no details.  
Chapman, Bob, '52, April 17, 2007.  
Shiver, Amos Jerome, '52, February 5, 2002.  
Springfield, Harold James, '52, Nov. 12, 2009.  
Green, Willard R., '53, December 23, 2020.  
Lock, Jack Allen, '53, January 16, 2021.  
McCarley, Robert Era, '54, April 28, 2008.  
Crawford Jr., Lindsay J., '55, Aug. 11, 2020.  
Ramsey, Jerry Dustin, '55, May 17, 2007.  
Bunn, Edward Jennings, '56, Sept. 26, 2004.  
Ledbetter, William Burl, '56, Dec. 1, 2018.  
Graul, Edward Eugene, '57, no details.  
Hopkins, Martin Gene, '57, no details.  
Meitzen, James Allen, '58, March 7, 2003.  
Slagle, Henry Roach, '59, March 20, 2006.  
Stasney Jr., Leonard W., '59, Oct. 27, 2015.  
Mauzy, Edwin Lamar, '60, Dec. 25, 2001.  
Beckham, Paul Miles, '63, May 6, 2001.  
Fix Jr., George Joseph, '63, March 10, 2002.  
Hammerquist, Earl Leon, '63, July 22, 2020.  
Moore Jr., Oran H., '63, May 19, 2004.  
Cathey, Jimmie Joe, '65, February 6, 2013.  
Ashley, James Merton, '74, no details.  
Gaidos, Robert Eric, '84, Sept. 16, 2006.

### EPSILON TX Ε

Adnot, John H., '64, November 21, 2002.  
Svenning, Ulla Elisabet, '85, Feb. 1, 2006.  
Higgins, David John, '86, no details.

### ZETA TX Ζ

Dunn, Jerry Russell, '62, no details.  
Ling, Charles Che, '62, July 21, 2006.

### ETA TX Η

Bhora, Sadekally, '78, no details.  
Jiles, David Lee, '83, January 11, 2009.

### KAPPA TX Κ

Rollins, Justin Efreem, '04, Sept. 28, 2010.

## UTAH

### ALPHA UT A

Jenson, Bruce Heywood, '76, no details.  
Hendricks, Gregory Alan, '97, Feb. 20, 2003.

## VERMONT

### ALPHA VT A

Blanchard, Richard Ralph, '64, Sept. 9, 2008.

### BETA VT B

Pratt, Lawrence W., '59, April 7, 2015.

## VIRGINIA

### ALPHA VA A

Stevens, Luther Spangler, '41, Sept. 10, 2000.  
Urdike Jr., Otis Lee, '41, December 29, 2000.  
Thacker, Dean Reynolds, '44, July 4, 2018.  
Stanley Sr., Charles W., '50, March 31, 2018.  
Frischmann, Peter George, '52, no details.  
Quinlan, Robert Vail, '57, June 11, 2001.  
Sadler Jr., Alexander B., '58, Jan. 27, 2012.  
Davis, Wayne Bernard, '68, no details.  
Phelps, Glenn Stephen, '69, no details.  
Padgett, Joseph Edward, '76, Sept. 14, 2003.  
Warnke, Kevin Christopher, '81, Feb. 8, 2021.

### BETA VA B

Helmets, Henrik Olaf, '45, no details.  
Guldenzoph, Edwin Arthur, '46, Oct. 8, 2006.  
Graham, Albert James, '48, no details.  
Carpenito, Anthony P., '49, no details.  
Light, Thomas McGeorge, '49, no details.  
Tuttle, Frederick L., '52, November 28, 2020.  
Bodie Jr., Clyde Owen, '58, April 23, 2021.  
Francis, Richard Lane, '60, October 4, 2020.  
Richardson Jr., Alvin Willson, '64, July 3, 2003.  
Haygood, Timothy James, '78, Sept. 18, 2008.

### DELTA VA Δ

Morgan Jr., James Markus, '46, Jan. 2, 2021.  
Tait, Thomas Harrison, '55, Nov. 30, 2020.  
Jamison, Donald Kinzie, '57, Nov. 19, 2019.

## WASHINGTON

### ALPHA WA A

Johannson, Donald Eugene, '50, Aug. 25, 2000  
Novack, Edward Julius, '50, no details.  
Weingarten, Harry N., '50, October 20, 2005.3  
Luschei, Loren Louis, '56, Nov. 30, 2009.  
Johnson, Leonard J., '62, no details.  
Rudin, John Ulrich, '63, January 4, 2003.  
Fuller Jr., Lloyd F., '77, no details.  
Turner, James Edwin, '81, May 24, 2003.  
Erickson, Donald Reed, '83, January 8, 2009.

### BETA WA B

Powell, Albert E., '41, no details.  
Parker, Glen Eli, '49, no details.  
Van Meter, James Laverne, '49, Dec. 31, 2020.  
Halstead, Floyd Harold, '50, April 27, 2006.

## New Fall Problems

### 1: Ancient Hieroglyphics

Recently, archaeologists have provided a translation of some cryptic hieroglyphic inscriptions. They are statements made by Cleopatra, Marc Antony, Julius Caesar, and Cleo's father. Not all the statements are true. In fact, no two persons made the same number of true statements. Assume that Cleopatra could love only one person at a time and that someone told more truths than Caesar.

Cleopatra: 1. I lost my asp in Memphis. 2. I love my daddy. 3. I do not love Julius.

Antony: 1. Cleo loves me. 2. Caesar is ambitious. 3. Brutus is a true friend of Caesar's.

Julius: 1. Cleo loves me. 2. Brutus is a true friend of mine. 3. Cleo did not lose her asp in Memphis.

Cleo's Dad: 1. Cleo loves either Marc Antony or Julius Caesar. 2. Cleo lost her asp in Luxor. 3. Caesar is not ambitious.

Whom does Cleopatra love?

—*The Crucible*

### 2: Policy Numbers

Before the days of computers, a clerk in an insurance office was given the job of assigning numbers (in ascending order) to new policies with the following restriction: each decimal digit in the number has to be different. Unfortunately, the 6 and 8 keys on his typewriter are broken. How many new numbers can he assign in the range of 5402 to 97543210, inclusive?

—*Introductory Combinatorics*  
by Richard A. Brualdi

### 3: Perfect Bridge

In the game of bridge, four 13-card hands are dealt from a standard 52-card deck. What is the exact probability of a "perfect" deal, that is, what is the probability that each of the four hands contains 13 cards of the same suit? Express your answer as either a ratio of integers, or a ratio of expressions involving factorials.

—**R.W. Rowland**, MD B '51

### 4: Cryptic Solver

Solve this cryptic addition of two five-digit numbers in base 10 with no leading zeros and different letters are different digits:  
ABCDE + BCDEF = CDEFG

—**Byron R. Adams**, TX A '58

### 5: Mercury's Orbit

On average, what percent of the time is Mercury the closest planet (of the inner eight) to Pluto? Assume all orbits are circular and coplanar. We would like two significant digits in your answer.

—**Fred J. Tydeman**, CA Δ '73

**BONUS:** A space traveler, marooned due to the failure of her rocket engine, observes on her video screen that a small asteroid is rapidly approaching on a collision course. In a desperate effort to nudge her rocket ship out of the path of the asteroid, she decides to vent the contents of her water tank to space. The water tank has a volume of two cubic meters and is half full with water and half full with nitrogen at a pressure of 6 MPa. The initial mass of the ship and its contents is 2000 kg. What change in velocity can be achieved if the

venting is stopped just as the last drop of water exits the ship (and no nitrogen escapes)? Assume the vent on the water tank is aligned with the center of gravity of the ship and that the tank is fitted with a heater so that the expansion of the nitrogen is isothermal. Ignore friction losses.

—**Greg A. Qualls**, KS B '80

### COMPUTER BONUS:

One example of a six-digit decimal integer with all different digits, such that its square contains none of the digits in the number, is 203,879 ( $203,879^2 = 41,566,646,641$ ). Find a second example.

—*A Passion for Mathematics*  
by Clifford A. Pickover

Email your answers (plain text only) to any or all of the Fall Brain Ticklers to [BrainTicklers@tbp.org](mailto:BrainTicklers@tbp.org) or by postal mail to **Dylan Lane, Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697**.

The method of solution is not necessary. The Computer Bonus is not graded. Where possible, exact answers are preferable to approximations. The cutoff date for entries to the Fall column is the appearance of the *Winter Bent* which typically arrives in early January (the digital distribution is several days earlier). We welcome any interesting problems that might be suitable for the column. Dylan will forward your entries to the judges who are **J.C. Rasbold**, OH A '83; **J.R. Stribling**, CA A '92; **G.M. Gerken**, CA H '11; and the columnist for this issue,

— **F.J. Tydeman**, CA Δ '73

# CHAPTER ETERNAL

Continued from page 46

#### BETA WA B

Henager, Charles Henry, '50, May 29, 2008.  
Johnson, George W.S., '50, no details.  
Flechsig Jr., Alfred Julius, '57, Aug. 28, 2015.  
Scheibner, James Elwood, '57, July 28, 2020.  
Tharp, Stanley R., '58, September 7, 2001.  
Curtis, David G., '65, August 13, 2011.

#### GAMMA WA Γ

Decker, Delmar Lee, '71, March 11, 2004.

#### WEST VIRGINIA

#### ALPHA WV A

Pettit, Gene Lee, '52, May 23, 2017.  
Konrad, Charles E., '61, January 10, 2014.

Meikle, Philip Gene, '61, October 21, 2010.  
Simon, Jerome Callahan, '66, Jan. 18, 2005.

#### BETA WV B

Barnhart, David Bruce, '72, May 7, 2021.

#### WISCONSIN

#### ALPHA WI A

Ille, William B., '44, May 13, 2015.  
Bastian, Lehyman John, '50, Jan. 31, 2012.  
Bartelt, Charles Henry, '52, March 10, 2000.  
Szeremeta, Peter John, '52, no details.  
Foss, Bryon Edward, '64, June 1, 2015.

#### BETA WI B

Kemnitz, Robert Harold, '42, no details.

Jenny, Daniel P., '43, August 3, 2017.  
Frederickson, Charles A., '46, Nov. 23, 2004.  
Garvey, Thomas Michael, '47, Aug. 27, 2005.  
Wilson, Arthur Daniel, '48, Dec. 2, 2006.  
Bruemmer, William M., '50, Feb. 19, 2013.  
Blaschke, Richard F., '51, October 13, 1998.  
Springer, Karl Eugene, '56, no details.  
Cronin, Patrick Lawrence, '63, Jan. 29, 2000.  
Hauber, Janet E., '65, March 29, 2021.

#### GAMMA WI Γ

McPherson, Joseph D., '64, no details.  
Youngwith, Richard A., '80, March 1, 2021.

# Alumni Giving



Delta Club  
**David J. Cowan Jr., P.E.**  
 FL E '14  
*I give to Tau Beta Pi because  
 it gave to me more than I  
 could ever give back.*

Founders Club continued from page 37

**CO B** Melvan, Joseph John '76  
 Strange, Cathy Lee '77  
**CO Δ** Gonzalez, Julio Jorge '91  
**CT A** Peters, Merz Kenton '55  
**CT B** Skinner, Robert '59  
**CT Γ** DeFelice, Frank Carl '09  
**DE A** Bramble, Joye Lynn '84  
 Charles, Dave David '78  
 Dominy, Kenneth Stafford '90  
 Fahs, James Edward '83  
**DC A** Hanable Jr., Hampton '71  
**FL A** Albanes, Willy V. '71  
 Good Jr., Thomas J. '91  
 Rice, Chris Alan '79  
**FL E** Carlsson, Leif A. '80  
**GA A** Church, Billy Ray '63  
 Crayton, Render '54  
 Gunter, Richard Russell '50  
 Gurley, Thomas Brook '59  
 LeCroy, Robert Thomas '83  
 Williamson, Michael Fred '79  
**IL A** Allison, Herman Dean '69  
 Anderson, Robert Alan '65  
 Kuo, Franklin '56  
**IL Γ** Parks, Melvin Jay '52  
**IL Δ** McLachlan, Christopher R. '96  
**IN A** Dix, Rollin Cumming '57  
 Magnuson, David Lee '64  
 Zygmont, Roger Walter '74  
**IN Γ** Armstrong, Gary James '66  
 Mercurio, James Michael '92  
**IN Δ** Veres, James Stephen '74  
**IA A** Ackley, Mark W. '72  
 Bridges, Harold Ray '65  
 Rockne, Allan Kert '66  
**KS A** Horner, J. Michael '70  
 Phillips, Robert Keith '88  
 Smith, Douglas Bruce '55  
 Stutz, Richard Griffin '50  
**KS B** McKean, Michael Leon '65  
 Schneidewind, Deanna Carol '99  
**KY A** Cates, Terry Duane '83  
**KY B** Gray, John H. '75  
**LA A** Fowler, James Bradley '82  
 Hutchinson, Jeffrey Thomas '68  
**LA Γ** Lotz, David Louis '78  
**LA Δ** Dugas, Caffery James '77  
**MD A** Witten, Louis '41  
**MD B** Dannaway, Samuel Steven '78  
 Makar, Joseph Stephen '78  
 Rader, Richard Andrew '62  
 Shipley, Jerry Bruce '71  
**MD Γ** Sciolli, Blaise E. '84  
**MA A** Levesque, Allen Henry '59  
 Manning, Robert James '88  
**MA B** Foster, Edward Terence '63  
 Knibbe, Todd Eric '91  
 Wilbourn, David Straight '55  
**MA Δ** Filene, Robert Joseph '63  
 Sorgi, Aladino D. '61  
 Walsh, James Ralph '90  
**MI A** Lapekas, Sean Philip '96  
 Porteous, William M. '70  
 Thelen, Stanley Paul '83  
**MI B** Campbell, Edwin Herbert '64  
 Kurz, Richard John '68  
 Luttinen, Gail Lee '68  
**MI Γ** Darnton, William '63

Lorts, Daniel Joseph '77  
 Lou, Zheng '84  
**MI Δ** Stark, Daniel Joseph '74  
**MI E** Baker, Kathy Lynn '73  
 Walton, Gregory Francis '71  
**MI H** Bowden, George F. '48  
**MI Θ** Quinn, Tom Ryan '18  
**MI I** Gurriere, Crystal Lynn '06  
**MN A** Gregorich, David Peter '62  
**MS B** Sims, Thomas Randall '79  
**MO A** Bade, Darrell Dean '73  
 Stoenner, David William '70  
**MO B** Cadwallader, Lee Charles '82  
**MO Γ** Hironaga, Jon Kenich '90  
 Schroeder, Nathan Edward '82  
 Wessling, Donald Richard '60  
**NE A** Montz, Mark Andrew '83  
**NH A** Kirouac Jr., Donald Robert '78  
**NJ A** Chiarello, David Matthew '66  
 Daugert, Richard David '88  
 Giacobbe, Anthony L. '79  
 Habert, William Charles '63  
 Smith, Alexander Paul '07  
**NJ B** Kossmann, Richard John '55  
**NJ Γ** Loney, Norman Washington '77  
 Singalewitch, Joseph Don '50  
 Woody, David Lee '71  
**NY A** Zhai, Eric Xiaoyuan '03  
**NY Γ** Andersen, Dudley George '65  
 Harris, Robert Philip '74  
 Peltz, Adrienne Nicole '07  
**NY Δ** Ku, Katharine '71  
 Reilly, Philip Mitchell '53  
 Sawchuk, John Andrew '71  
**NY E** Jesaitis, Algirdas Joseph '67  
 Lemp, Ronald Alan '73  
 Wolfson, Herbert L. '62  
**NY H** Atzenbeck, Charles Richard '60  
 Biesiadecki, Glenn Joseph '78  
 Marino, Anthony Louis '77  
 Oslon, Arthur '52  
**NY I** Bienstock, Mark Andrew '83  
 Wilkowski, Stephen '80  
**NY K** House, Mary Anne '93  
 Kneiss, Aaron D. '95  
 Leidig, Carl Frederick '85  
**NY Λ** Feiner, Henri '60  
 Ruffett, Lee Stuart '56  
**NY M** Gifford, Gregory P. '74  
 Griggs, Francis E. '56  
**NY N** Dressing, Thomas George '90  
 Goldsmith, Robert Holloway '51  
 Michalek, Kenneth P. '83  
 Siegel, Richard Mark '88  
 Sunday, Bonnie '84  
**NC A** Rudisill, Jacob M. '75  
 Starkey, Robert L. '80  
**NC Γ** McDowell III, C. Blake '65  
**ND A** Mischel, Robert Joseph '69  
 Offerdahl, Richard '65  
**OH A** Herman, Zelek Seymour '67  
 Thompson, Thomas William '58  
**OH B** Bolchalk, Jefferey Raymond '01  
 Lynch III, Thomas Joseph '72  
 Seifert, David Albert '63  
**OH Γ** Conkle, Harold Nicholas '72  
 Crawshaw, James Robert '54  
 Gruebmeier Jr., Orville W. '60

Hayne, James Wesley '51  
 Over, Ann Patricia '83  
 Rankovic, Vladimir '85  
**OH Δ** Ballinger, Charles William '72  
 Leonard, James Albert '56  
**OH E** Amtsberg, Donald Gordon '51  
**OH H** Ethridge, Ronald Alan '78  
 Spinelli, Chris John '05  
**OH Θ** De Jaco, Norbert Francis '62  
 Kamm, Irmin Otto '54  
 Mysona, Ronald Joseph '82  
 Ward, Robert Lee '88  
**OH I** Cailor, Randall Frank '85  
**OH Λ** Moore, Leah Beth '10  
**OH M** Graham, Douglas William '75  
**OK A** McNamara, Robert '85  
 Goodin II, J. Riley '80  
**OK Γ** Lindahl Jr., Ernest Raymond '73  
**OR A** Seid, Robert '52  
**OR B** Joanis III, Marvin A. '96  
**PA A** Buskirk, William Charles '71  
 Kobilsek, Peter Paul '79  
**PA B** Harper, Kenneth Lee '74  
**PA Γ** Knepper, Ronald William '65  
 Seaverson, Erin R. '00  
 Valarezo, Christopher J. '06  
**PA Δ** Clelland, Peter John '63  
**PA E** Silnutzer, Norman Roy '67  
 Biko, David Matthew '97  
 Fennell, William '70  
**PA Z** Bailey, Patrick E. '94  
 Brown, Kathleen Ann Happ '85  
 Markau, David B. '84  
 Mladin, Catalina Mihaeza '97  
 Wagman, Sander Robert '61  
**PA H** Mighell, Edwin R. '52  
**PA Θ** Reitmeier, Glenn Arthur '77  
**PA I** Kane, William Francis '61  
**PA K** Luoni, John A. '75  
**PA Λ** Needy, Kim LaScola '84  
**RI B** Caranci, Manfred Leonard '72  
**SC A** King, Charles Henry '66  
 McCord, Stephen Andrew '90  
**SC Γ** Hass, Paul Henry '56  
 Hess, Douglas Raymond '76  
 Matthews, John Howard '70  
 Reese, Stanley Howell '62  
**SD A** Koemmpel, Kenneth John '83  
**TN A** Ervin, Sam V. '77  
 Jackson, Robert Harris '59  
 Kerley, William David '80  
 Settle, Gray Lamar '62  
 Sinko, Robert John '85  
 Stanfill, Ira Colon '61  
 Heger, David John '87  
**TN B** Robertson, Franklin Lee '64  
**TN Γ** Eggers, Tony D. '83  
**TN Δ** Chen, Annie Y. '89  
**TX A** Harrison, Steven Manley '97  
 McWilliams, Hobart Francis '59  
**TX B** Reinking, Greg Franklin '84  
**TX Γ** Wilkinson, John Darwin '75  
**TX Δ** Gibson, Gayle June '83  
 McClung, David Allen '73  
 McIver, Jes David '51  
 Muhlstein Jr., Lado '59  
 Pivonka, Thomas Gerald '72  
 Russell, Billy Don '70



Zeta Club  
**Anthony M. Zupcic, Esq.**  
 IN  $\Gamma$  '70  
*It is a privilege to support Tau Beta Pi's work assisting in the development of our top engineering students.*



Zeta Club  
**Robert L. Smialek**  
 OH A '65  
*Throughout history, engineering has advanced the quality of life. Happy to support Tau Beta Pi!*

*Founders Club continued*

**TX E** Casamayor, Joaquin E. '82  
 Parmely, Marjorie Anne '75  
**TX K** Foster III, Samuel Taylor '77  
**TX A** Ko, Hung Sheng Jeff '95  
**UT A** Forbes, Charles Robins '49  
**UT  $\Gamma$**  Reese, Kenneth Bryce '04  
**VT A** Aldrich, Bradley Frank '81  
**VA A** Gritton, Charles William K. '76  
 Kolodney, Matthew '71  
**VA B** Epperly, William Robert '56  
 Weaver, Frank Rene '78

**VA  $\Gamma$**  Hunt, Robert E. '97  
 Pronko, Mark Steven '81  
 Yoblonski, Edward James '80  
**WA A** Laakso, Melvin T. '70  
 Nelson, Timothy Alan '85  
**WA B** Rusch, Christopher Alan '79  
 Gillie, Joanna Lyn '03  
**WV A** Altieri, John Anthony '73  
**WV B** Sneckenberger, John E. '64  
 Jarvis, David A. '81

**WI A** Anderson, Eric Scott '71  
 Binning, Robert Calvin '51  
 Carroll, Richard Dennis '71  
 Ng, Crystal S. '95  
**WI B** Guse, Roy John '79  
**WY A** Caudill, Lisa Ann '86  
 Reese, David Leland '81

## Pre-Club Members/Contributors Continues on TBPI website

Due to the number of Alumni contributors, the Pre-Club Members will be acknowledged on our website (PDF) at: [www.tbp.org/?AGP](http://www.tbp.org/?AGP). All donations are essential to the continued success of the Association, but due to rising print costs of each issue, these donors will be listed with

all of the other contributors in a protected PDF document on the website. If you have questions or concerns, please contact [development@tbp.org](mailto:development@tbp.org). Thank you for your understanding as we try to produce an enjoyable and efficient magazine for our readers.

## Ensuring the Future of Tau Beta Pi through Planning Today

### Meet Paul D. Wetenhall

Paul, GA A '73, grasped the power of engineering analysis and discipline through the dinner-time stories of his engineer father whose life demonstrated that integrity and honesty were more important than technical expertise. Paul appreciates that Tau Beta Pi recognizes students who demonstrate excellence in their engineering studies and personal values. Paul supports TBPI annually to help American universities continue to educate engineers who will act with technical brilliance and personal integrity. He has included Tau Beta Pi in his estate plans to join others in strengthening the organization's long-term financial resources. Your donations make all the difference. Large or small, every dollar counts and helps turn students dreams into reality. If you want to ensure that your support for Tau Beta Pi continues, a gift in your will or trust may be right for you.



For more information about planned giving, email Sherry Jennings-King at [development@tbp.org](mailto:development@tbp.org) or visit [www.tbp.org/?Give](http://www.tbp.org/?Give)

# Executive Council MEETING MINUTES

These are the summaries from Executive Council (EC) Meetings — July 2020 through February 2021.

## July 25, 2020

### Virtual

*The EC approved:* Establishment of the Abriola Scholarship Fund, the Bloomberg Scholarship Fund, the Farmer Family Scholarship Fund, the Swanson 2020 CGA Fund; and revision of the Swanson 2018 CGA Fund.

*Executive Director Gomulinski reported:* to the Council; a review of the WW2 era Convention cancellations determined these Conventions were cancelled via a vote of the chapters. Mr. Gomulinski will get an assent from the chapters via ballot to adhere to the previous practice; the hotel accepted the letter cancelling the Convention site without penalty, and HQ is working to get the deposit refunded.

*President Smith presented:* President's report; discussed the Social Awareness Listening Session, plans are to move forward, and the need for a professional to moderate the session. Develop a performance review with rating scale and the same categories from the Board Source review used last year.

*The Governance Committee reported:* the committee is on track to meet the original Convention date for all the policies. Councillor Pierce presented the charter for phase 2 of the Constitution and Bylaws General Revision and Councillor Peterson stated the focus of the task force is not to change content but to focus on reorganizing and putting topics together; he moved to accept the charter as written and the Council approved on a voice vote.

*The Finance Committee presented:* its report and Treasurer Fable discussed an anticipated deficit of about \$500k in FY 20/21 budget and focused conversation on reducing the deficit. The financial analysis does not yet include the payroll forgiveness program. The Council discussed accepting the FY budget as is and revising it after working to close the deficit. Councillor Pierce moved to accept the FY21 budget and Council approved on a voice vote.

*The Convention Program Planning Committee presented:* and Councillor M. Youssef discussed the outline for the committee's work and various task forces to work on the virtual meeting; committees would start work before the event and would present at the business portion and a need for a voting platform to be determined;

Zoom licenses and outside facilitators would be investigated; registration fees, preliminary scheduling, career fair, and naming of the event were discussed.

*The Program Support Committee presented:* and Councillor Peterson discussed the difficulty of recruiting reviewers for the scholarships and fellowships; potential proposal to reach out to HBCU's to start TBII chapters through leverage of contacts and mentoring those chapters. Program Directors shared concern that they are not getting feedback on topics that were brought up to the EC. Engineering Futures planning is to go virtual and will be using the new materials.

*The Chapter Support Committee reported:* Secretary Alexander stated that the committee would like to make the *tbp.org* email addresses available to student chapters for increased Association visibility to candidates. The committee has been using Slack for two months and recommends that it be rolled out to the Association for collaboration.

*The Council approved:* a preliminary petition from Texas A&M University at Qatar, changes to the Trust Spending Guide, and three Virtual initiations for the Fall 2020 Academic Term. Mr. Gomulinski presented Director of Rituals D'Avignon's letter to the Council to adopt version 10 of the online initiation ritual and extend the online initiation period.

## August 17, 2020

### Virtual

*President Smith provided:* an update on the Listening Session; two bids were received that were much higher than expected and it was agreed to update the people interested in participating.

*Executive Director Gomulinski reported:* an update on work with Director of Finance to prepare for the audit and review restrictions on funds that the Association maintains. The Headquarters staff continues to work remotely with limited staff in the office as needed.

*The Governance Committee reported and approves the following policies:* Engineering Program Appeal Process; Removal of Chapter Officers; New Chapter Petitions; Membership Awards, Volunteer Service Awards, Professionalism; MindSET, Financial Review; Financial Audit; Whistleblower Protection; and Fraud Prevention & Reporting.

*The Finance Committee reported:* Treasurer Fable noted the committee is working with Mr. Gomulinski and Mr. Brown to review audit results when available.

*The Convention Planning Committee presented:* its report and Councillor M. Youssef stated that teams have been organized to work on the virtual meeting and the tentative schedule is to have the virtual meeting between October 17 and November 7. An update will be provided in approximately two weeks as the teams continue their work. Councillor King-Monroe presented information on the Career Fair which will be held on the Thursday and Friday of the original Convention dates. Secretary Alexander presented the software Discord which is proposed to help create the sense of community for the virtual event.

*The Chapter Support Committee presented an update:* the committee would like to revise the recommendation to roll out Slack to instead use Discord. The committee desired to use the same software as the virtual event so as to limit the various logins required. The committee is providing Eminent Engineer guidelines.

## September 21, 2020

### Virtual

*The Program Support Committee presented:* its report which included the process for selecting new Engineering Futures and District Directors. The monetization of the new EF curriculum was discussed which was developed using the NSF grant. The Association would be able to train facilitators outside of TBII that could train others. The Council discussed the associated factors and requested additional information and a SWOT analysis.

*The Governance Committee reported:* Vice President Morales discussed the eight new policies and job descriptions. President Smith moved to add Councillor Pierce's comment regarding reimbursement in the job descriptions. The Council approved the amendment on a voice vote. The Council discussed the need for consistency in wording regarding the alumni status of the member. The policies and job descriptions include: Convention Site Selection, Director of the District Program, Director of Alumni Affairs, Director of Fellowships, Trust Advisory Committee Member, District Director, Donor Privacy, Executive Director. Councillor Pierce moved that the policies be approved with grammatical changes and it passed on a voice vote.

*The Finance Committee presented:* Treasurer Fable stated no action at this time. The Council discussed the re-designation of some of the funds that were designated by previous Councils and the PPP Loan was discussed and additional information was requested.

## **November 2, 2020 Virtual**

*The EC approved the following service recognitions:* a Resolution of Appreciation to **Kristopher "Cody" Johnson, AR A '15**, for four years as a District 9 Director; a Distinguished Service Award to **Nancy R. Gray, MI T '69**, for 22 years as an EF Facilitator; and a Resolution of Appreciation to **Janette A. Keiser, AK A '76**, as a District 14 Director and 2 years as an EF Facilitator.

*The EC approved:* Establishment of the Mary Anne and Thomas A. Nelson Scholarship Fund, the SAE partnership for three additional years (2021-23), and a proposal to engage the services of DelCor to identify an Association Management System.

## **December 14, 2020 Virtual**

*The EC approved the following appointments:* **Margaret G. Goshert, MN A '12**, as a District 11 Director to a term starting 12/15/20 and ending 6/30/22, and reappointment of **John W. Prados, TN A '54**, to the Editorial Board to a term ending 6/30/23. A petition was approved to charter the provisional "Kansas City Alumni Chapter."

## **January 11, 2021 Virtual**

*The EC approved the following:* a Distinguished Service Award to **Christina M. Harrison, TN A '93**, for 7 years as a District 11 Director and appointed **Alison L. Hu, CA T '96**, to the Editorial Board to a term ending 6/30/23.

*Executive Director Gomulinski presented the committee preference survey.* Councillor M. Peterson moved to appoint one EC member to each of the following committees: Finance, Governance, Development, Convention, and Strategic Planning and Councillor G. Youssef amended to include the DEI. The Council will finalize committee appointments and chairs between the next two January meetings.

## **January 18, 2021 Virtual**

*President Morales presented:* a history of the development of the Strategic Plan and set the Council's goals for the discussion and Councillor J. Sciacca detailed the process the Council will follow. The Council directed Mr. Gomu-

linski to ensure the Vision and Mission are updated on the Association website to match adopted language once both are finalized; Secretary Alexander requested that both the Vision and Mission should be reviewed following the development of the Strategic Plan; and the Council discussed the phrasing of the Mission concerning the language of "professional development."

## **January 25, 2021 Virtual**

*The EC approved:* **Natalie J. Turco, NY S '20**, as a District 1 Director to a term starting 1/1/20 and ending 6/30/23.

District 3 Director Justin Glasgow delivered a prepared presentation discussing the need and objectives of a potential Diversity, Equity, and Inclusion Committee. The Council discussed the proposal with the presenters and included the following: request that the proposal include SMART goals; committee would be able to report back on a quarterly basis to the Council; group could prepare a charter for the Council; however, additional input is needed from across the Association prior to formally chartering the committee; output would be Association policy; recommended that a task force be authorized with objectives of gathering information and preparing a committee charter; utilize what outside organizations have prepared in that area and adapt that information. Treasurer Fable moved to charter a DEI Task Force charged to develop a DEI Committee Charter by June 30, 2021, and the Council approved the task force.

District 10 Director Allen Erickson delivered a presentation stating the need and objectives of a potential Chapter Development Program. The Council discussed the proposal with presenters. President Morales inquired about the proposed size of the board noting that it seemed larger than necessary. Mr. Erickson stated the intent is to ensure there are multiple representatives from stakeholder groups who can collaborate and discuss with the understanding that not all board members will be present at each meeting. Councillor Peterson provided the opinion of the Program Support Committee that the Chapter Development proposal be housed under the District Program. The Council discussed the proper placement of the proposal, within or outside of the District Program. Mr. Gomulinski stated that volunteers could be appointed as District Directors without districts to be constitutionally recognized and begin service immediately. Councillor Pierce moved to charter the Chapter Development group as a committee of the District Program with the objectives established in the proposal. Treasurer Fable moved

to charter the Chapter Development Committee to follow their proposal and decide if they wish to be included under the District Program or directly to the Council. Mr. Gomulinski expressed that the concerns of placement be addressed before this committee is adopted and Treasurer Fable moved to commit this discussion to the Program Support Committee to bring a recommendation to the Council. After discussion, the Council approved.

*The EC approved* Mr. Gomulinski's recommendation to pursue the second draw of the PPP Loan. Treasurer Fable presented the updated SWOT developed on the Council's previous comments. President Morales discussed an alternate approach to the development of the Strategic Plan following the model used for policy and charter development by the 2020 Governance Committee. The Strategic Plan Task Force would prepare the proposal to be reviewed by the Council. Secretary Alexander asked if the review process would include program directors and other volunteers and Mr. Morales noted this would be internal to the Council but feedback would be solicited in development of metrics and mechanisms.

## **February 1, 2021 Virtual**

*The EC continued the Chapter Development discussion and Councillor M. Youssef reported that District Directors Allen Erickson and Ian Frank met with Director of the District Program Stacey Forkner and both sides agreed to house under the District Program. The Strategic Planning Proposal was discussed and Treasurer Fable stated the group felt the Governance Committee would be an ideal source for the Strategic Plan going forward and Councillor Sciacca recommended the committee consider inclusion of managing Executive Director Gomulinski's job performance as part of the charter revision.*

*Executive Director Gomulinski recommended committee appointments for 2021. After much discussion regarding methodology for alignment, Councillor Pierce moved to approve the committee appointments as amended, and the Council approved on a voice vote.*

Councillor M. Youssef discussed the status of the 2021 Convention. Specific timing, lodging, and in person vs. virtual are still to be determined. If no in-person Convention were held, an Association Official's meeting may be held during the same time slot. Treasurer Fable inquired as to when a decision would be made and Ms. Youssef noted likely over the summer. Mr. Gomulinski noted that additional review will likely occur around April.

# Petitions Received

Tau Beta Pi has received two additional petitions for new collegiate chapters and all have been reviewed by the Executive Council, met the Constitutional requirements for a new collegiate chapter, and were approved for an inspection committee visit as soon as travel conditions allow. If the inspection committee's reports are favorable, final petitions from each school would be due in June 2022 and would be considered by the 2022 Convention. The two schools highlighted below join the other four petitioning chapters profiled in the Summer issue.

## UNIVERSITY OF GEORGIA

The Society at the University of Georgia (UGA) in Athens, has operated since September 2018. The group submitted a preliminary petition for a new chapter in March 2021. UGA was chartered by the state of Georgia in 1785. It is a public institution of higher education focused on global research, hands-on learning, and outreach. The college of engineering was established in 2012 and offers eight undergraduate and seven graduate degree programs. Construction is underway and active for an I-STEM building on campus to provide research and collaborative spaces for chemistry and engineering. Completion date is Oct. 2021.

## LIPSCOMB UNIVERSITY

The Society at Lipscomb University in Nashville, Tennessee, has operated since 2018. The group submitted a preliminary petition for a new chapter in June 2021. The school found its permanent home in 1903, was renamed after its founder in 1918 (David Lipscomb College), and took its current name in 1988 following its accreditation to award master's degrees. Lipscomb has developed into a fast-growing Christian liberal arts institution and now serves more than 4,700 students. The Lipscomb Academy, which serves children in preschool through the 12<sup>th</sup> grade, is now the largest private school of its kind in Middle Tennessee. The engineering college offers programs in civil, electrical and computing, and mechanical engineering.



Top Image: Driftmier Engineering Center.  
Bottom Image: Fields Engineering Center.

## FRESHMAN STEM SCHOLARSHIPS:

Every year, six incoming college freshmen are awarded a Tau Beta Pi — SAE International Engineering Scholarship of \$1,500 to pursue an engineering degree from an ABET accredited program. Here are some biographical details on the 2021-22 recipients.

**Michael Morse** (Houston, TX) - mechanical engineering at Texas A&M University

**Mori Ono** (Ann Arbor, MI) - mechanical & aerospace engineering at Princeton University

**Jillian Parrino** (Alburtson, NY) - mechanical engineering at Cornell University

**Audrey Westlund** (Leesburg, VA) - civil & environmental engineering at North Carolina State University

**Jonathan Wu** (Baton Rouge, LA) - systems science & engineering at University of Pennsylvania

**Angelina Xu** (Basking, NJ) - computer science or biochemical engineering at Massachusetts Institute of Technology

# TBP.ORG/STORE

THE ONLY PLACE ON EARTH TO GET YOUR TAU BETA PI GEAR!

## GET READY FOR BACK TO SCHOOL!

### NEW Official T-Shirt

Show off your TBP cred on campus with the new official t-shirt featuring the Tau Beta Pi logo. Available in Black/Gold or Navy/Silver. **\$16**

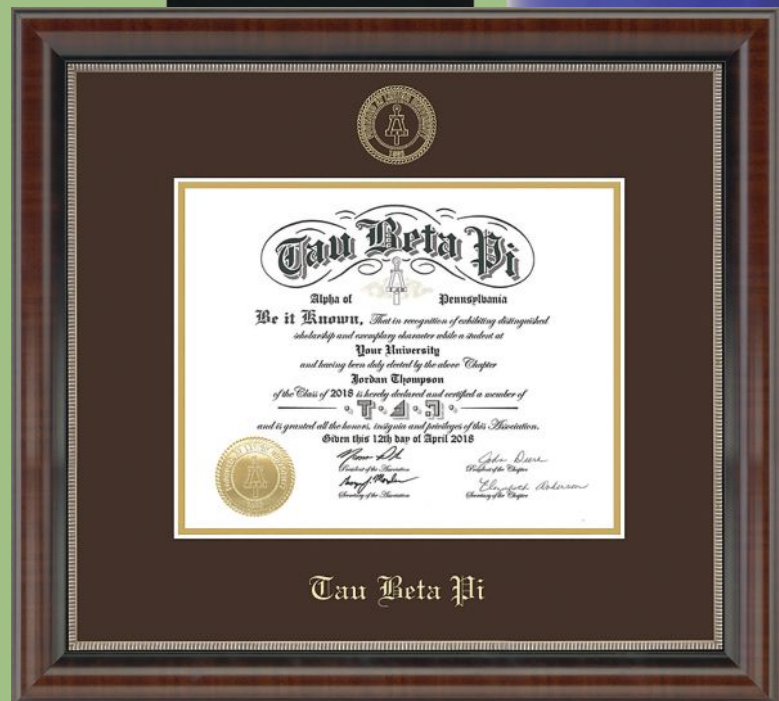


### Stainless Steel Travel Mug

The 20 Oz. Stainless Steel Tumbler is insulated, double walled, and a perfect combo of stainless steel and plastic. The outer lining and thermoplastic black liners keep your drink hot or cold and the tapered contour design is perfect for most cup holders. Available in Blue or Black. **\$10.00**

### Membership Frame

Proudly display your TBP membership certificate in this frame by Churchill Classics. These official frames feature the Association's name and Bent in a gold emboss, on a high-quality wood molding. Each frame includes instructions to hang your frame to professional standards. Produced in the USA. **\$150.00**



PLUS: Bent Caps, Beanies, Bent Charms & Pins, Bent Tie Tacks, Hoodies, Official Seal Rings, Recognition Buttons, Ceramic Mugs, License Plate Frames, Ink Pens, Travel Mugs, Padfolios & Paperweights!

# 10% DISCOUNT: TBPBENT

# ALUMNI NOTES

Your fellow Tau Bates are interested in news about **you**.



## ALABAMA GAMMA '19

### Sandra Cutts Ph.D.

Sandra, former 2019-20 Sea Grant Knauss Policy Fellow, worked on environmental policy issues in the U.S. Senate as a 2021-22 Fulbright Scholar grantee. She will continue research and teaching at Aristotle Univ. of Thessaloniki, in Greece and has a civil engineering Ph.D. from UAB.



## ALABAMA GAMMA '90

### Kimberly S. Greene

Kim is the Nathan W. Dougherty Award recipient for 2021 given by the University of Tennessee in recognition of "her efforts in support of her alma mater, and her overall contributions to engineering." She is chairman, president, and CEO of Southern Company Gas and a 1984 UTK grad in eng'g science.



## CALIFORNIA TAU '93

### Eric C. Shen P.E.

Eric joined the San Gabriel Valley of Governments as Director of Capital Projects serving as technical advisor in numerous regional, state, and federal collaboratives. Previously, he was the Mid-Pacific Gateway Office Director, Maritime Administration of the U.S. Dept. of Transportation.



## FLORIDA ALPHA '00

### Jennifer R. Garbos

Jennifer is chair for WiSTEMM, a Kansas City based organization dedicated to encouraging and supporting women in STEM fields through professional development opportunities and networking. She currently leads innovation efforts at Hallmark Cards and has a B.S. degree in mechanical engineering.



## FLORIDA IOTA '16

### Robert M. Keane III

Rob has joined Velontra, an aerospace company, as chief operating officer. Previously, he served ten years as a Force Recon Marine and was awarded for valor in combat, graduated from Embry-Riddle Aeronautical University, and worked for GE Aviation and BAE Systems.



## INDIANA ALPHA '86

### Gregory P. Chapelle Ph.D.

Gregory received the Lifetime Achievement Award by Marquis Who's Who for 35 years of work as an electronics engineer and researcher. Since 2005, he has worked for General Atomics as a systems architect/team leader developing synthetic aperture radar for unmanned air vehicles for the U.S. Navy.



## KENTUCKY ALPHA '70

### Gordon S. Glenn P.E.

Gordon was inducted into the University of Kentucky College of Engineering's Hall of Distinction 2020 class. He rose through the ranks over a 25-year career at Computer Data Systems, Inc. and served as president and CEO for the last eight years. His B.S. is in mechanical engineering and retired in 2009.



## LOUISIANA BETA '73

### Stephen M. Blust P.E.

Stephen was the recipient of the elite AT&T Fellows Honor, their top technical award. As Director of Radio Standards, he was cited for a sustained career of outstanding leadership, extraordinary technical contributions in advancing mobile wireless communications, and his role as a global visionary.



## MISSISSIPPI ALPHA '21

### Kaylee N. Bundy

Kaylee is the recipient of the Society For Biomaterials C. William Hall Scholarship. She is a senior majoring in biomedical engineering at Mississippi State University and was recognized for "her outstanding scholastic achievement and her stated objectives for future research."



## NEW YORK EPSILON '67

### Thomas L. Maniscalco DEN

Dr. Maniscalco retired after 28 years with the Department of Defense and 28 years from Kearfott Guidance and Navigation Corp. as a senior principal systems engineer in design & development. He is volunteering as a mentor/tutor with The Learning Center NJIT/Rutgers/NYU and teaching P.E exam review.



Send items about civic activities, honors won, weddings, promotions, etc. to Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697 or to [media@tbp.org](mailto:media@tbp.org). Material for publication must be received by November 1 for the Winter issue and by February 1 for the Spring issue. Include name, address, chapter/class year, and email address or phone number. Thank you!



#### NEW YORK PI '12

### Thomas G. Gamer P.E.

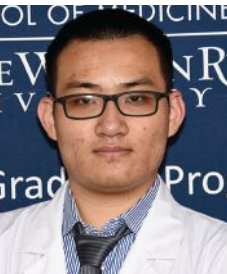
Thomas has joined M/E Engineering Team as an energy engineer in the sustainability/commissioning services group. He previously worked as a mechanical engineer for Erdan Anthony and has an ME degree from Rochester Institute of Technology.



#### SOUTH CAROLINA GAMMA '70

### Johnston W. Peebles Ph.D.

John now has an endowed scholarship in his name at The Citadel, thanks to former students and Nova Technologies. The new scholarship will support cadets who are majoring in electrical or computer engineering. John has been a professor since 2002 at his alma mater and is an industry leader in "technologist."



#### OHIO ALPHA '20

### Alan Z. Chen

Alan received the National Science Foundation Graduate Student Research Fellowship and will pursue a Ph.D. in biomedical engineering at CWRU/Cleveland Clinic. He graduated from Case Western Reserve University with a B.S. degree in polymer science & engineering.



#### VIRGINIA GAMMA '15

### Kayla M.G. Farrow Ph.D.

Kayla was selected as the Old Dominion University Alumni Association 40 Under 40 awardee. Founder of the technology startup Semicyber where she is CEO, innovator, and engineer, she received the Women of Color in STEM Rising Star Award and volunteers in her community as a STEM panelist/speaker.



Kelli Luginbuhl, Ph.D.  
CEO, Isolere Bio

#### COLORADO DELTA '11

### Kelli M. Luginbuhl

Kelli is founder and Chief Executive Officer of Isolere Bio, which was founded in 2017 with "the vision of simplifying and streamlining the purification of biotherapeutics to improve global access to these important drugs."

She has a B.S. degree in chemical engineering from Colorado State University, is a 2011 Tau Beta Pi Fellow, and earned her Ph.D. in biomedical/medical engineering from Duke University.

Earlier this year, the company secured \$7 million in seed funding from lead investor Northpond Ventures. Now Isolere Bio is ready to scale with a focus on "reimagining the manufacturing of complex therapeutics."

"With this new funding, we will be able to grow our team, diversify product development, and robustly demonstrate how our technology solves major biomanufacturing problems from the lab bench to commercial scale," Luginbuhl said.

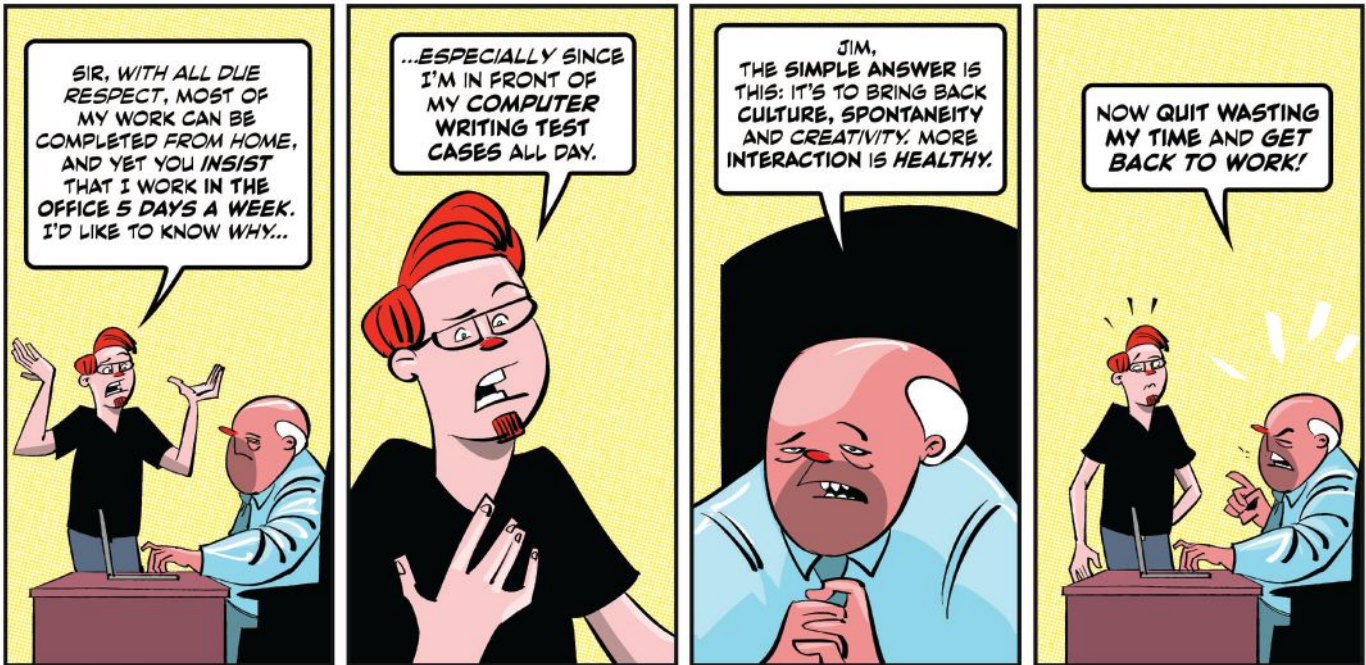
The funding will also support "development, scaleup, and commercialization" of its most advanced purification technology platform.

Learn more about Kelli and Isolere Bio, located in Durham, North Carolina, at [www.isolerebio.com](http://www.isolerebio.com).

# TRUE TALES from the TESTBENCH...

Fellow engineers: the story you are about to read is *true*. Only the *names* have been changed to protect the guilty.

Words / Art:  
Krishna M. Sadasivam  
krishnadraws.com



Special thanks to **Dave Wolf (NJ B '65)**, for submitting this True Tale.

**DO YOU HAVE A TRUE AND HUMOROUS TALE FROM YOUR ENGINEERING EXPERIENCE TO SHARE?**

It could be featured in the next True Tales from the Test Bench! Send your submissions for consideration to [dylan@tbp.org](mailto:dylan@tbp.org).

**TAU BETA PI  
2-DAY VIRTUAL  
RECRUITING  
FAIR 2021**  
**OCTOBER 18-19  
10 AM TO 5 PM**

**CANDIDATES:**  
upload your resume to  
[tbp.org/resumes](http://tbp.org/resumes)

**COMPANIES  
& SCHOOLS:**  
register your company  
to participate at  
[www.tbp.org/?recruit](http://www.tbp.org/?recruit)  
or contact Pat McDaniel  
at [pat@tbp.org](mailto:pat@tbp.org).

## THE BENEFITS OF MEMBERSHIP

See the complete list at: [www.tbp.org/memb/benefits.cfm](http://www.tbp.org/memb/benefits.cfm)

**DELL:** Discount program on Dell branded personal products, electronics, and accessories.

**GEICO:** Additional discounts on auto insurance. (See page 23)

**LINKEDIN:** Join 32,400 members in our official group for professional networking and career discussions (search: Tau Beta Pi Engineering Honor Society).

**LOCAL HOSPITALITY:** Access to a worldwide inventory of hotels at exclusively discounted rates.

**PPI:** 20 percent discount on professional licensing exam review materials (FE/EIT, PE, and more).

**TAU BETA PI JOB BOARD:** Post a resume online and browse hundreds of engineering jobs at top companies.

## Advertise in *The Bent* for LESS!

Now you can reach MORE exceptional candidates — in the official quarterly publication of the largest engineering organization in the USA — at a special reduced rate. See our NEW Media Kit [www.tbp.org/?MediaKit](http://www.tbp.org/?MediaKit) or contact [pat@tbp.org](mailto:pat@tbp.org) for information on advertising in print and digital issues.

★★★★

Recruit & Hire **THE TOP ENGINEERING STUDENTS**  
**IN THE WORLD** at the Tau Beta Pi Virtual Recruiting Fair  
**OCTOBER 18-19, 2021**

# RECRUITING FAIR

## + SPONSORING OPPORTUNITIES



MEET  
CANDIDATES  
FROM  
**250**  
COLLEGES +  
UNIVERSITIES!

REACH ALL  
ENGINEERING MAJORS  
INCLUDING:  
**Mechanical  
Electrical  
Biomedical  
Chemical  
Computer**

ACCESS TO  
RESUMES OF  
**1000+**  
ENGINEERING +  
COMPUTER SCIENCE  
STUDENTS!

See full details on RECRUITING + SPONSORSHIP opportunities at:

**[WWW.TBP.ORG/?RECRUIT](http://WWW.TBP.ORG/?RECRUIT)**

Questions? Contact Pat McDaniel: [pat@tbp.org](mailto:pat@tbp.org)



**Tau Beta Pi**  
The Engineering Honor Society

# Two Degrees. Two Years.

## MBA/MS in Engineering Dual Degree from MIT

MIT Leaders for Global Operations is a two year dual degree MBA+MS program between MIT's Sloan School of Management and School of Engineering. LGO works with 20+ industry partner companies and 8 engineering departments to develop leaders at the intersection of business and technology. Learn more at [lgo.mit.edu](https://lgo.mit.edu).



# MITLGO

