



# **Governor's University Research Initiative**

## **2023 Legislative Report**

**Reporting Period: January 2021 - December 2022**

**Office of the Governor | Texas Economic Development & Tourism**

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## OVERVIEW OF THE GOVERNOR'S UNIVERSITY RESEARCH INITIATIVE GRANT PROGRAM

*"We are beginning the process of elevating higher education in Texas to greater heights than it's ever been before. Through our Governor's University Research Initiative, Texas is making a strategic investment to vault the standings of our public colleges and universities into the top-ranked nationally. Our investment into GURI will help our universities recruit even more Nobel Laureates and National Academy members to the Lone Star State, and will serve as a catalyst for further economic development."*

*-Governor Greg Abbott*

The Governor's University Research Initiative grant program ("GURI") was enacted in 2015 by the 84th Legislature with a goal to bring the best and brightest researchers in the world to Texas colleges and universities. Through the GURI program, Texas welcomes transformative researchers who will in turn serve as economic catalysts to the Texas economy for years to come. Administration of the GURI program is the responsibility of the Texas Economic Development & Tourism (EDT) office, in the Office of the Governor.

GURI is a matching grant program to assist eligible Texas institutions of higher education in recruiting distinguished researchers, such as Nobel Laureates and members of national honorific societies, from around the world. The program is codified in Chapter 62 of the Texas Education Code, Subchapter H and the program's administrative rules may be found in Title 10, Part 5, Chapter 190 of the Texas Administrative Code.

The GURI Advisory Board was established to assist the Economic Development Finance division of EDT in the Office of the Governor ("OOG") with the review and evaluation of applications for funding of grant proposals under this chapter. The first application was received February 25, 2016. As of December 31, 2022, there have been 24 GURI Advisory Board meetings.

## REPORTING REQUIREMENTS

The contents of the GURI legislative report are outlined in Section 62.168 of the Texas Government Code:

Sec. 62.168. REPORTING REQUIREMENT. (a) Before the beginning of each regular session of the legislature the governor shall submit to the lieutenant governor, the speaker of the house of representatives, and the standing committees of each house of the legislature with primary jurisdiction over economic development and higher education matters and post on the office of the governor's Internet website a report on matching grants made to eligible institutions from the fund that states:

- (1) the total amount of matching funds granted by the office;
  - (2) the total amount of matching funds granted to each recipient institution;
  - (3) a brief description of each distinguished researcher recruited by each recipient institution, including any amount of external research funding that followed the distinguished researcher to the institution;
  - (4) a brief description of the expenditures made from the matching grant funds for each distinguished researcher; and
  - (5) when available, a brief description of each distinguished researcher's contribution to the state's economic competitiveness, including:
    - (A) any patents issued to the distinguished researcher after accepting employment by the recipient institution; and
    - (B) any external research funding, public or private, obtained by the distinguished researcher after accepting employment by the recipient institution.
- (a-1) The report may not include information that is made confidential by law.
- (b) The governor may require an eligible institution that receives a matching grant under this subchapter to submit, on a form the governor provides, information required to complete the report.

## **PROGRAM ACTIVITY**

As of December 31, 2022, the OOG has approved \$78,239,216.50 in GURI matching funds to five Texas universities:

- \$59,680,000 of matching funds, in sixteen awards, granted to Texas A&M University
- \$9,794,216.50 of matching funds, in four awards, granted to the University of Houston
- \$1,800,000 of matching funds, in one award, granted to The University of Texas at Austin
- \$5,000,000 of matching funds, in one award, granted to Texas Tech University
- \$1,965,000 of matching funds, in one award, granted to The University of Texas at Arlington

Universities receiving GURI matching grant awards are required to submit quarterly status reports and reimbursement requests with supporting documentation. OOG staff reviews reimbursement requests to ensure compliance prior to disbursing funds.

## **DISTINGUISHED RESEARCHERS AND EXPENDITURES**

The following contains a brief description of each distinguished researcher recruited by each recipient institution, in addition to a brief description of expenditures made from the matching grant funds for each researcher. Each of the distinguished researchers enhance the faculty at each university, and their research and discoveries have the potential to catalyze job creation and commercialization efforts in Texas.

## TEXAS A&M UNIVERSITY

### **Girish Saran Agarwal, Ph.D.**

*Member of the Royal Society – United Kingdom*

Dr. Agarwal's research focuses in quantum optics and photonics with a range of applications. Optical techniques permit the identification of chemical compounds and will form the basis to detect pathogens and chemicals at a distance. At Texas A&M University, he has been developing laboratories for microscopy and quantum sensing and has produced publications and graduate students on a range of topics in quantum bio photonics. His most recent work is in developing imaging capabilities well beyond the traditional ones. He lectures on the interdisciplinary courses for graduate students. While at Texas A&M University, he has received funding from the Air Force Office of Scientific Research (AFOSR) and The WELCH Foundation. His work was recently recognized by the Optical Society of America's C. H. Townes award, named after Nobel Laureate. His colleagues in the biophotonics program are studying economically significant biotic and abiotic stress in wheat and collecting Unmanned Aerial Vehicle (UAV) data on several crops in Texas.

Dr. Agarwal started at Texas A&M University on August 1, 2016. To date, expenditures have been made from the matching grant funds for equipment, supplies, and direct operating expenses for Dr. Agarwal. This has led to the creation of the Automated Precision Phenotyping (APP) Greenhouse Complex whose grand opening was on October 20, 2022.

### **Robert O. Ambrose, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Robert O. Ambrose currently serves as the Division Chief of the Software, Robotics and Simulation Division of the NASA Johnson Space Center, where he provides leadership to over 100 civil servants and over 400 contractors. He is also the current Vice President (Industrial Activities) of the Institute of Electrical and Electronics Engineers Robotics and Automation Society. He co-chairs the NASA Robotics, Tele-Robotics, and Autonomous Systems roadmap team and is the lead for surface mobility and robotics for NASA's lunar exploration program. Finally, he supports the efforts of the White House's Office of Science and Technology Policy in his capacity as Technical Point of Contact for NASA's collaboration in the National Robotics Initiative. At Texas A&M University, Dr. Ambrose will lead the establishment of the Robotics and Space Initiatives Facility focused on advancing research and knowledge for machine-human interaction and autonomous vehicle both on land and in space.

Dr. Ambrose started at Texas A&M University on August 16, 2021. To date, no expenditures have been made from the matching grant funds for Dr. Ambrose.

**Leif Andersson, Ph.D.**

*Foreign Associate of the National Academy of Sciences, Member of the Royal Academy of Sweden, International Member of the American Philosophical Society*

Dr. Leif Andersson is among the most renowned international leaders in the genomic and molecular studies of domestic animals as models for biomedical research. Dr. Andersson conducts research on the genetic changes underlying phenotypic diversity in horses, pigs, dogs, and a variety of other domestic animals. Many of Dr. Andersson's discoveries in domestic animal models can be directly applied to agriculture, as he uses the latest genomic tools to reveal the genetic control of many important production traits in agricultural animals. Dr. Andersson participates in graduate education programs of the College of Veterinary Medicine at Texas A&M University.

Dr. Andersson started at Texas A&M University on October 16, 2016. To date, expenditures have been made from the matching grant funds for travel, construction, equipment, a one-time salary supplement, supplies, and direct operating expenses for Dr. Andersson.

**Regan Lucas Bailey, Ph.D.**

*Inductee to the National Academy of Medicine*

Dr. Regan Bailey is a nutrition scientist and nutritional epidemiologist and currently is Professor of Nutrition Science at Purdue University. Dr. Bailey earned her B.S. from The Pennsylvania State University in Applied Nutrition, M.S. from The Indiana University of Pennsylvania in Food and Nutrition, Ph.D. from The Pennsylvania State University, Nutritional Sciences with a minor in Gerontology, and most recently Master's in Public Health from Johns Hopkins University in Public Health and Epidemiology. She served as Nutritional Epidemiologist at National Institutes of Health (NIH), Office of Dietary Supplements. She was one of twenty nationally recognized scientists appointed by the U.S. Department of Agriculture and Department of Health and Human Services to serve on the 2020 Dietary Guidelines Advisory Committee. Dr. Bailey will bring new public health nutrition expertise to develop and strengthen the research capacity within Texas A&M AgriLife and build connections across the University to include public health scientists and biostatisticians in the School of Public Health, policy experts in the Bush School of Government and Public Service, psychologists in the College of Liberal Arts, engineers developing wearable technologies in the College of Engineering, members of the Center for Biological Clocks in the College of Science, and across other state agencies, including extension and outreach activities. She will lead efforts to translate research into guidelines and policies that will optimize health across the life course both for Texans and the nation.

Dr. Bailey Started at Texas A&M University on June 1, 2022. To date, no expenditures have been made from the matching grant funds for Dr. Bailey.

**Mark A. Barteau, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Mark A. Barteau brings extensive experience as a researcher, inventor, academic leader, and consultant for organizations around the world. Dr. Barteau's research is focused on selective oxidation catalysts for more efficient chemicals production, electrochemical energy storage, and integrated capture and conversion of carbon dioxide and other low-value resources to valuable products. Dr. Barteau is a Professor of Chemistry and Chemical Engineering at Texas A&M University. Dr. Barteau's research focuses on new technologies related to largescale batteries as well as impacting the energy and chemical industries.

Dr. Barteau started at Texas A&M University on February 15, 2018. To date, expenditures have been made from the matching grant funds for equipment for Dr. Barteau.

**Ali Erdemir, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Ali Erdemir started his professional career as an Assistant Scientist at Argonne National Laboratory back in 1987 and subsequently been appointed as a Senior Scientist and an Argonne Distinguished Fellow (the highest technical rank) in 2004 and 2010, respectively. During his tenure at Argonne, Dr. Erdemir has established himself as a pioneering and distinguished scientist in mechanical engineering, materials science, tribology, energy, environment, sustainability, and related disciplines. His dedicated and multidisciplinary research has resulted in several key discoveries for which many awards, honors, and patents have been bestowed. Since Joining Texas A&M University on February 1, 2020, Dr. Erdemir has been establishing research infrastructures directed towards the development of new materials, coatings, and lubricants for a broad range of cross-cutting applications in manufacturing, transportation, and other energy conversion and utilization systems where further increases in efficiency, reliability, and environmental sustainability are of primary objectives. His group specifically strives to unravel key/underlying mechanisms that control friction and wear at the most fundamental levels using advanced computational methods (including AI/ML) and design and synthesize more advanced surface and interface chemistries providing super lubricity and/or super high hardness as well as extreme resistance to wear, corrosion, fatigue, and other types of degradations under harsh operational and environmental conditions.

Dr. Erdemir joined Texas A&M University on February 1, 2020, and since then significant expenditures have been made from the matching grant funds for equipment, supplies, renovations, travel, and direct operating expenses for Dr. Erdemir.

**M. Cynthia Hipwell, Ph.D.**

*Member of the National Academy of Engineering*

Dr. M. Cynthia Hipwell has been at the forefront of the creation of new devices, models,

and metrology from the fundamental understanding of small nanoscale and surface phenomena and nanotechnology integration. Dr. Hipwell's experience in leading interdisciplinary research and technology transfer and commercialization benefits Texas A&M's nanoscale and surface science technology facilities. These efforts are expected to lead to new discoveries and enhance Texas' global economic competitiveness in nano/biotechnology and manufacturing by generating new jobs and start-up companies for commercialization.

Dr. Hipwell started at Texas A&M University on September 1, 2017. To date, expenditures have been made from the matching grant funds for travel, equipment, supplies, construction, direct operating expenses, and professional and consulting services for Dr. Hipwell.

**James Edward Hubbard, Jr., Ph.D.**

*Member of the National Academy of Engineering*

Dr. James Edward Hubbard, Jr. began his career as an engineering officer in the U.S. Merchant Marine Serving in Vietnam. Dr. Hubbard, Jr. has established a national and international reputation in smart, adaptive vehicles and sensors. Dr. Hubbard, Jr. is considered to be an expert in smart structures and has made significant contributions in this field. At Texas A&M University, Dr. Hubbard, Jr. leads the establishment of a facility focused on advancing research and knowledge for safety technologies as well as methods and processes that support connected and autonomous vehicle development in conjunction with the newly established Center for Infrastructure and transportation industries.

Dr. Hubbard, Jr. started at Texas A&M University on February 1, 2018. To date, expenditures have been made from the matching grant funds for equipment, supplies, renovations, travel, and direct operating expenses for Dr. Hubbard, Jr.

**Frances S. Ligler, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Frances S. Ligler is a member of the National Academy of Engineering (NAE) and the National Academy of Inventors (NAI). Among her other honors, she received the National Academy of Engineering Ramo Founders Award (2020), the Christopher Columbus Foundation Homeland Security Award, and special recognition of Presidential Rank by two U.S. Presidents: Meritorious Senior Professional (Obama) and Distinguished Senior Professional (G.W. Bush). Dr. Ligler will join Texas A&M University as a senior faculty member in the Department of Biomedical Engineering. Dr. Ligler is well poised to lead interdisciplinary efforts aimed at translation of medical devices and biosensing systems with applications to regenerative medicine.

Dr. Ligler started at Texas A&M University on June 1, 2022. To date, no expenditures have been made from the matching grant funds for Dr. Ligler.

**George T. Ligler, Ph.D.**

*Member of the National Academy of Engineering*

Dr. George T. Ligler is a founder of his own business, GTL Associates. Among his other honors are membership in American Rhodes Scholars and a life member of Institute of Electrical and Electronics Engineers. Dr. Ligler's intellectual leadership is recognized at the national and international level and has had significant influence on policy. As a member of the NAE, he has actively participated in key standing and ad hoc committees focused on science, transportation, research, and information systems. Three areas where he has made substantial impacts have been flight control management, U.S. census data collection, and Internal Revenue Service information systems. Dr. Ligler joined Texas A&M University as a senior faculty member in the Department of Multidisciplinary Engineering. Dr. Ligler is well poised to lead interdisciplinary efforts aimed at improved systems engineering. His technical expertise and experience in leading large-scale projects with critical needs for integration of software and hardware components to achieve command/control capabilities are closely aligned with a number of Texas A&M Engineering Experiment Station (TEES) research priorities and centers. Further, he has deep practical experience with intellectual property protection and translation of technology into commercial products, topics that are also strongly relevant to institutional priorities for impact.

Dr. Ligler started at Texas A&M University on June 1, 2022. To date, no expenditures have been made from the matching grant funds for Dr. Ligler.

**Elaine Surick Oran, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Elaine Surick Oran is considered a world authority on numerical methods for largescale simulation of physical systems by utilizing computer modeling. Dr. Oran has pioneered computational technology for the solution of complex reactive flow problems, unifying concepts from science, mathematics, engineering, and computer science in a new methodology. Dr. Oran leads an Interdisciplinary Center of Excellence in Simulation and Control of Non-Equilibrium Reacting Systems at Texas A&M University. Her research and collaboration efforts will lead to new technologies that can be utilized by the aerospace and defense industries.

Dr. Oran started at Texas A&M University on March 1, 2019. To date, expenditures have been made from the matching grant funds for equipment, supplies, construction, and direct operating expenses for Dr. Oran.

**Thomas Overbye, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Thomas Overbye maintains a robust research portfolio that includes very large, multi-

investigator energy projects. Some of the projects include a \$22.5 million cybersecurity project with the United States Department of Energy, an ARPA-E project on synthetic data for power grid analysis, and a National Science Foundation project on the impact of geomagnetically-induced currents on power networks. In joining the work already ongoing at Texas A&M University to make the state's electric power grids operate smarter, thus called "Smart Grids," Dr. Overbye leads in the areas of improved power system operations, real-time smart grid visualization, and cybersecurity. These improvements will save money for the public utility companies and the state, making the state's power system more reliable and secure. Dr. Overbye serves as a professor in the Department of Electrical and Computer Engineering and teaches on topics related to power distribution and generation.

Dr. Overbye started at Texas A&M University on January 1, 2017. To date, expenditures have been made from the matching grant funds for construction, equipment, supplies, professional and consulting services, travel, and direct operating expenses for Dr. Overbye.

**Roderic Ivan Pettigrew, Ph.D., M.D.**

*Member of the National Academies of Engineering and Medicine*

Dr. Roderic Ivan Pettigrew was the founding Director of the National Institute of Biomedical Engineering at the National Institutes of Health. Dr. Pettigrew will build and lead the new research center of excellence on bioimaging and biomedical technology that will place Texas A&M University at the forefront of innovative diagnostic and treatment options for major medical conditions such as atherosclerosis, coronary artery disease, and stroke. The establishment of this center will greatly benefit researchers and patients as well as lead to the creation of new technologies and commercial products. Dr. Pettigrew has split faculty appointments between the College of Medicine and the College of Engineering and is working to establish and lead the Engineering Health (EnMed) Initiative and was the 2020 recipient of the Vannevar Bush Award given by the National Science Board for lifelong science and technology leadership.

Dr. Pettigrew started at Texas A&M University on November 27, 2017. To date, no expenditures have been made from the matching grant funds for Dr. Pettigrew although the project has begun to develop a novel MRI scanner. Expenditures are planned this year to acquire this unique equipment from the manufacturer, Siemens.

**Kenneth S. Ramos, M.D. Ph.D., Pharm B.**

*Member of the National Academy of Medicine*

Dr. Kenneth Ramos is a scientific leader in academic medicine, with designations in the National Academies of Medicine (elected member) and Science (lifetime associate). Dr. Ramos has 30 plus years of experience across the tripartite mission areas of education, research, and clinical service, and has received recognition throughout the world for his scientific contributions in the areas of genomics, precision medicine, and toxicology. Dr. Ramos' research program integrates diverse approaches to understand the genomic basis of human disease and the role of gene-environment interactions in health and disease. Translational research in his laboratory focuses on the study of repetitive genetic

elements in the mammalian genome and their role in genome plasticity and disease, while clinical studies focus on the development and characterization of diagnostic and prognostic biomarkers of cancer and pulmonary disease to advance the goals of personalized genomic medicine. Dr. Ramos works closely with colleagues throughout the world to steer the changing landscape of medicine and healthcare and provide academic, executive, administrative, and scientific leadership in several areas.

Dr. Ramos started at Texas A&M University on March 27, 2019. To date, expenditures have been made from the matching grant funds for equipment for Dr. Ramos and expansion of infrastructure.

## UNIVERSITY OF HOUSTON

### **Birol Dindoruk, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Birol Dindoruk is currently American Association of Drilling Engineers Endowed Professor of Petroleum Engineering at University of Houston, previously he was the Chief Scientist of Reservoir Physics and the Principal Technical Expert of Reservoir Engineering in Shell with 28 years of industrial experience. His technical contributions have been acknowledged with many awards during his career, including SPE Lester C. Uren Award (2014), Cedric K. Ferguson Medal (1994), and Distinguished Membership. In 2017, he was elected as a member of the National Academy of Engineering for his significant theoretical and practical contributions to enhanced oil recovery and CO<sub>2</sub> sequestration. He has been active in various editorial positions under SPE and also Elsevier. Currently he is the Editor in Chief for all SPE Journals and as well as Editor in Chief of Journal of Natural Gas and Engineering of Elsevier. Dr. Dindoruk is well-known for his extensive work on thermodynamics of phase behavior/EOS development and experimental work, interaction of phase behavior and flow in porous media, enhanced oil recovery and CO<sub>2</sub> sequestration, and correlative methodologies. Recently, Dr. Dindoruk has also been working in the area of data analytics, artificial intelligence, and machine learning and focusing on effective incorporation of data sciences into the oil and natural gas industry practices and energy systems. In recent years, he has authored/co-authored various articles for hydrogen, geothermal systems and adsorptive storage.

Dr. Dindoruk joined University of Houston in October 2020 and commissioned a state-of-the-art laboratory focusing on CO<sub>2</sub> sequestration and interaction of phase behavior and flow for complex fluids and porous materials. Parallel to this, Dr. Dindoruk was able to collaborate with nine students and established an ecosystem leading to publications in reputable journals. To date, expenditures have been made from the matching grant funds for equipment, supplies, lab infrastructure, and maintenance and operations for Dr. Dindoruk.

### **Ganesh Thakur, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Ganesh Thakur is a pioneer and world authority in the field of integrated petroleum reservoir management of conventional and unconventional reservoirs and CCUS (carbon capture, utilization, and storage). Dr. Thakur started at the University of Houston (UH) as a Distinguished Professor of Petroleum Engineering in the Cullen College of Engineering. He also serves as the Director for Energy Industrial Partnerships (EIP), making an immense impact on the state of Texas in the field of energy. Dr. Thakur has secured (as a PI) external industrial research funding of \$4.868 million (one of the highest at UH) after joining UH. In addition, he has filed for two patents.

Dr. Thakur has been conferred two awards in 2019 and 2020: Legion of Honor (50 years of continuous service) and Honorary Member (the highest-level award made) by the Society of Petroleum Engineers Intl. (SPE). He serves as the President of SPE

Foundation, and on the Board of Texas Academy of Medicine, Engineering, Science and Technology (TAMEST) and is the Treasure for the years 2021-22. He has been elected as the VP (Year 2023-24) and President (Year 2025-26) of TAMEST.

Dr. Thakur started at the University of Houston on August 1, 2016. To date, expenditures have been made from the matching grant funds for Travel, Equipment, Supplies, Construction, Direct Operating expenses, and a One-time Salary Supplement for Dr. Thakur.

Dr. Thakur started at the University of Houston on August 1, 2016. To date, expenditures have been made from the matching grant funds for equipment, supplies, direct operating expenses, and a one-time salary supplement for Dr. Thakur.

**Andrea Prosperetti, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Andrea Prosperetti is an expert on the physical and computational aspects of multiphase flows, flows in which liquid, gas and solids coexist. Such flows are widely encountered in the oil industry, in mechanical and chemical engineering, geosciences, medicine, biomedical technology, heat transfer and many other fields. Dr. Prosperetti joined the University of Houston as a Distinguished Professor of Mechanical Engineering in the Cullen College of Engineering from the Johns Hopkins University where he held the Charles A. Miller Chair of Mechanical Engineering. In the period between 2016 and 2018, he led the multi-disciplinary Center for Advanced Computing and Data Systems of the University of Houston promoting education in advanced computing throughout the University. He was also the founding director of the University of Houston Hewlett Packard Enterprise Data Science Institute, and, in this capacity, he established a Master's program in Engineering Data Science in the Cullen College. Pursuing a focus on undergraduate education, he also led summer programs for select groups of students with the theme "Vistas in Advanced Computing". His research activities at the University of Houston have been directed toward the prevention and mitigation of catastrophic blow-outs from oil drilling operations such as the 2010 DeepWater Horizon accident in the Gulf of Mexico, the study of a variety of multiphase flow problems and the writing of a forthcoming book on bubbly flows.

Dr. Prosperetti started at the University of Houston on July 1, 2016. Most of the GURI funds have been employed for the purchase of major computing equipment for him and the entire University of Houston community.

**John Suppe, Ph.D.**

*Member of the National Academy of Sciences*

Dr. John Suppe is a world leader in structural geology and tectonics, and his research focuses on seismic tomography and their multiscale application for fundamental discoveries concerning the deep interior of the Earth, the structure of mountain belts, and fine structure of petroleum basins. Dr. Suppe joined the University of Houston as a Distinguished Professor of Earth & Atmospheric Sciences in the College of Natural

Sciences and Mathematics. Dr. Suppe also established and leads the multi-disciplinary Center for Tectonics and Tomography (CTT) at the University of Houston. The center's research agenda has covered many relevant research topics such as sea-level rise, geohazards, stratigraphy, and petroleum and resource exploration, all of which are vital to the economy and well-being of Texas. Dr. Suppe and the CTT team at University of Houston have made a series of fundamental breakthroughs on the deep structure of the Earth's interior, by now covering over half the Globe, extending from the Gulf of Mexico, Caribbean, North and South Americas to the Western Pacific, East Asia and Tibet. In addition, they have made novel technical advances in measuring the absolute viscosity of the Earth's mantle and the strength of the crust. Dr. Suppe was elected Fellow of the American Geophysical Union and received an award for his contributions to geomechanics from the American Association of Petroleum Geologists.

Dr. Suppe started at the University of Houston on September 1, 2016. To date, expenditures have been made from the matching grant funds for travel, equipment, supplies, construction, and direct operating expenses for Dr. Suppe.

## THE UNIVERSITY OF TEXAS AT AUSTIN

### **Joan Brennecke, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Joan Brennecke is a professor in the McKetta Department of Chemical Engineering and holder of an endowed chair. She is an internationally recognized leader in sustainable chemical process technologies, especially energy efficient chemical separations. As a member of the faculty at the University of Texas, Dr. Brennecke conducts research on energy and sustainability, including the design of ionic liquid systems for separation of CO<sub>2</sub> from flue gas and olefin/paraffin separations. Dr. Brennecke works closely with the university's office of technology commercialization to facilitate technology transfer from her lab to the marketplace thus benefiting not only the university, but the entire state of Texas. Dr. Brennecke has eight patents that have been issued since Dr. Brennecke joined the McKetta Department of Chemical Engineering and has had fourteen funded grants awarded.

Dr. Brennecke started at the University of Texas on August 1, 2017. To date, expenditures have been made from the matching grant funds for travel, equipment, supplies, direct operating expenses, and construction for Dr. Brennecke.

## TEXAS TECH UNIVERSITY

### **Luis Rafael Herrera-Estrella, Ph.D.**

*Member of the National Academy of Sciences*

Dr. Luis Herrera-Estrella, the distinguished GURI-researcher and member of the National Academy of Science, began employment on October 1, 2018. With the support of the GURI program and the approval of the Board of Regents of Texas Tech University he created the Institute of Genomics for Crop Abiotic Stress Tolerance (IGCAST), a world-class facility to develop genomic research for crop improvement. In four years, IGCAST hired five internationally recognized faculty members and a total of 42 active researchers. To date, IGCAST has published over 50 papers in high impact journals, produced four patent applications and generated over \$3 million in research grants from federal funding agencies and commodity boards. Dr. Herrera-Estrella and Dr. Son Tran, another senior faculty at IGCAST, have been among the 100 most highly cited scientists in the world for three consecutive years.

To date, expenditures have been made from the matching grant funds for travel, equipment, supplies, construction, and direct operating expenses for Dr. Herrera-Estrella.

## THE UNIVERSITY OF TEXAS AT ARLINGTON

### **Surendra Shah, Ph.D.**

*Member of the National Academy of Engineering*

Dr. Surendra Shah is the Presidential Distinguished Professor of Civil Engineering and Materials Science and Engineering and the founding Director of the Center for Advanced Construction Materials at the University of Texas at Arlington. Distinguished for his seminal research on synthesizing engineering mechanics and materials science, Dr. Shah has made unique, original, and extensive contributions to better understand and define properties of cement-based materials and developing new advanced materials which has become a world standard in these fields. Dr. Shah is responsible for developing high performance concrete, fiber reinforced concrete, self-consolidating concrete, shrinkage reducing admixtures, carbon nano-tube reinforced cement-based composites, and extrusion processing of concrete. These have revolutionized the way modern concretes are used worldwide. Dr. Shah leads the Interdisciplinary Center of Excellence for Advanced Construction Materials, which enables multidisciplinary, materials science, civil engineering, and mechanics research for establishing strong partnerships with research groups and collaborators within the greater scientific and engineering community, industry, and Texas Department of Transportation.

Dr. Shah started at The University of Texas at Arlington on January 16, 2019. The Center for Advanced Construction Materials (CACM) has now been well established with a state-of-the-art multi scale characterizing equipment. The CACM faculty has received many highly competitive awards which include three awards from NSF, a career NSF award, a United States Department of Defense award and a United States Department of Agriculture award. The center faculty (Ashraf, Danoglidis, Konsta Gdoutos, La Plante, and Shah) also mentor and supervise outstanding Ph.D. students and post-doctoral fellows and have received noticeable support from industry. To date, expenditures have been made from the matching grant funds for travel, equipment, supplies, construction, and direct operating expenses for Dr. Shah.

## GURI ADVISORY BOARD

The following have been appointed by the Governor to serve as members of the GURI Advisory Board.

**Chair, Sam L. Susser** of Dallas has served on the GURI Advisory Board since September 2015. He is Chairman and CEO of Susser Bank, Chairman and CEO of the Corpus Christi Athletic Club, and Chairman of the Advisory Board of the Partners Fund of Advisory Research Partners. He previously served as Chairman of Susser Petroleum/Sunoco, L.P. and Stripes, L.L.C., as a Director at National Retail Properties, and Chairman of the Driscoll Heath System. He currently is a member and past Chair of the University Development Board at the University of Texas, a member of the Advisory Board of the McCombs School of Business at the University of Texas, Chair of the Strategic Finance and Capital Planning Committee of the MD Anderson Board of Visitors, a Director of the Board of Southwestern Medical Foundation and the Dallas Holocaust and Human Rights Museum. He also serves on the Board and is Secretary of Texas 2036. Susser received a Bachelor of Business Administration from The University of Texas at Austin. He was appointed Chair by Governor Abbott in 2019.

**Jacque Baly** of Houston is president and chief executive officer for BalyProjects, a former Sugar Land City Council member, and a current adjunct professor at the University of Houston. She has served on many Boards, including Public Policy Director for the National Association of Women Business Owners and PAC Board member of the Houston Contractors Association. Recently, being appointed to Harris County Women's Commission. Previously, she served as a national delegate for the Women in Commercial Real Estate and as a member of the Houston-Galveston Area Council's Transportation Policy Council and the Greater Houston Partnership's Transportation Infrastructure Advisory Committee. She is past president of the Fort Bend Professional Women's Group and the River Oaks Women's Breakfast Club. Her awards include Top Ten Entrepreneur in the Country, Most Influential Blacks Today, University of Houston Alumni Association's "Rising Star" and "Black Alumna of the Year" awards, Texas Executive Women's "Woman on the Move" and Woman of Distinction. Baly received a Bachelor of Science in political science from the University of Houston and a master's degree in public administration from Texas Southern University. She is currently working on her Doctorate from the University of Southern California.

**Dr. Antonio Falcon** of Rio Grande City is medical director of Family Health Center, L.L.P. He is a member of the American Medical Association, Texas Medical Association, American Academy of Family Practice, Texas Academy of Family Practice, Texas Medical Foundation, Hidalgo-Starr County Medical Society, and the Health and Human Services Council. Additionally, he is a former member of the Parks and Wildlife Commission, United States-Mexico Border Health Commission, and the Nursing Facility Administrators Advisory Committee. Falcon received a Bachelor of Science from Baylor University and a Doctor of Medicine from Baylor College of Medicine.

**John Goodman** of Frisco is founder and executive chairman of Family ER + Urgent Care Centers, and is a board member, co-founder, former executive chairman, and former chief

executive officer of Goodman Networks. Previously, he held leadership positions at Bell Atlantic, GTE, and Verizon. He is a member of the National Association of Corporate Directors, board member of the Way of Grace Community Church, and former chairman of Friends of Scouting Circle Ten Boy Scouts. Additionally, he serves as a volunteer for Foodstep Uganda and Serving His Children Uganda, and he is a volunteer youth basketball coach for YMCA. Goodman received a Bachelor of Business Administration from Texas Tech University.

**Wendy Gramm** of Helotes is a retired Texas A&M University economist who has held positions on various for-profit, non-profit, academic, and U.S. Government organizations and boards. Gramm also serves on the Board of Directors of the CHRISTUS Santa Rosa Children's Hospital of San Antonio. Dr. Gramm is the retired chairman of the Texas Public Policy Foundation Board of Directors. She is a former senior scholar at the George Mason University Mercatus Center, where she founded the Regulatory Studies Program. Previously, she served as the executive director of the Presidential Task Force on Regulatory Relief, director of the Federal Trade Commission's Bureau of Economics, and administrator for Information and Regulatory Affairs at the Office of Management and Budget, under President Reagan's Administration. She also served as chairman of the U.S. Commodity Futures Trading Commission under Presidents Reagan and Bush, Sr. She is also a former member of the Texas A&M University System Board of Regents and an emeritae director of the Independent Women's Forum. Gramm received a Bachelor of Arts from Wellesley College and a Doctor of Philosophy from Northwestern University.

**Christy McClendon** of Lubbock is executive vice president and managing partner of GRACO Real Estate Development, Inc. She is a member of the Laura W. Bush Institute for Women's Health National Advisory Board, member and former chairman of the Lubbock Independent School District Talking on School for Young Women Leaders Advisory Council, and member and treasurer of the Lubbock Young Women's Leader Foundation Board. She is a former member and finance chairman for the Covenant Health System Board of Directors, a former member of the Texas Tech University Research Park, Inc., Board of Directors, and a former member of the Louise Hopkins Underwood Center for the Arts Board of Trustees. McClendon received a Bachelor of Business Administration in Accounting from Texas Tech University.

**Walker N. Moody** is the President of Pickering Energy Partners (PEP), and he has overall operational responsibility for the business. Prior to PEP, he served as a Partner and President of Tudor, Pickering, Holt & Co. Asset Management, the predecessor to PEP. Moody was previously with Goldman, Sachs & Co., within its Investment Management Division and was a Captain in the U.S. Air Force with international affairs and strategic planning duties in the Middle East, the Pentagon, and was a Social Aide-de-Camp at the White House.

He is on the Executive Committee of the MD Anderson Cancer Center Board of Visitors and the Advisory Board of biotech venture capital fund, Altitude Ventures Texas. Previously, he was a member of the Oversight Committee of the Cancer Prevention and Research Institute of Texas, the \$3 billion dollar state program to fund cancer related programs and companies. He holds an M.B.A. from Auburn University and earned both a B.S. and B.A., *magna cum laude* and Phi Beta Kappa, from Texas Christian University.

**Mike Fernandez Shaw** of Fredericksburg is owner and operator of Mike Shaw Automotive, which includes two dealerships in Texas. He is the former vice president of the Toyota National Minority Dealer Council and a former member of the Federal Reserve Bank Economic Advisory Council, Gulf States Toyota Dealer Council, Toyota National Dealer Council on Dealer Diversity, General Motors Hispanic Dealer Advisory Board, General Motors and Chevrolet National Dealer Councils, and the Toyota Lexus Dealer Advisory Network. He is a former board member of the Texas A&M 12th Man Foundation Board of Trustees and the South Texas Charity Quail Hunt Benefit and a trustee of the Boy Scouts of America. Additionally, he is a member of the Texas A&M Athletic Ambassadors and the Texas A&M Champions Century Council and a life member and former board member of the National Western Stock Show Association. Shaw received a Bachelor of Business Administration from Texas A&M University.

**Mica Espinoza Short** of El Paso is Vice President of Development for Paso del Norte Community Foundation. She previously served as the Community Relations Manager for Texas Gas Service and the Executive Vice President at the Greater El Paso Chamber of Commerce. She serves member and past chair of the Workforce Solutions Borderplex, board member of the FirstLight Community Foundation, and a graduate of Leadership El Paso - Class 28 and Leadership Texas - Class 2016. Additionally, she is a former board member of the El Paso Children's Hospital Board, the Borderplex Alliance, the El Paso ISD Education Foundation and of the YWCA Paso del Norte. Short received a Bachelor of Arts in Political Science and a Master of Public Administration from The University of Texas at El Paso. Additionally, she received a Certificate in Leadership Development from the U.S. Army War College's National Security Seminar.



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