



UNIVERSITY of
SOUTH FLORIDA

**USF Institute for
Advanced Discovery
& Innovation**

Celebrating 10 years

ABOUT THE INSTITUTE



From left: (Back row standing) Sylvia W. Thomas, Paul Sanberg, Richard Berman, Richard Gitlin, Steven Sasson, Charles Stanish, Sudeep Sarkar (Middle row standing) D. Yogi Goswami, Dennis Killinger, Fred Leonberger, Richard Byrne, John Swanson, Harry Cain II, Richard Knapp, Michael Fountain (Front row sitting) Lyle Schwartz, James Wynne, Shyam Mohapatra, Donald Keck, Vivian W. Pinn (Photo: Jay Nolan)

The Institute for Advanced Discovery & Innovation is an initiative of the University of South Florida (USF) designed to bring together a community of internationally distinguished scholars, industry leaders, scientists, inventors and innovators to share their expertise with USF students, faculty and the wider community, and further the university's goals of excellence in scholarship, research, and innovation.

Established in 2014 with five founding members, today the Institute has grown to include more than two dozen faculty. These renowned individuals include members of the National Academies of Sciences, Engineering, Medicine; the American Academy of Arts & Sciences; recipients of the National Medal of Technology & Innovation; inductees of the National Inventors Hall of Fame; Fellows of prestigious organizations including the American Association for the Advancement of Science, and National Academy of Inventors; among others.

Institute faculty engage with the university and the community in all areas of innovation: sharing insights with USF faculty; mentoring USF students; collaborating on research; participating in university and community projects; and providing guidance on contemporary issues.

Through their extensive combined experience, pioneering research and innovations, and senior leadership at national and international levels, Institute faculty provide a transformative resource for the university and the community at large.



RICHARD BERMAN

Richard Berman is the associate vice president of strategic initiatives for the University of South Florida Research & Innovation, visiting social entrepreneurship professor in the Muma College of Business, and a professor in the institute. A recognized global leader in health care, education and management, he has consulted for the Commissioner of the U.S. Food and Drug Administration, the U.S. Department of Health and Human Services, McKinsey & Company, and the government of Rwanda. He has served as New York State Commissioner of Housing and Economic Development and trustee of the State University of New York, as well as on the Commission on Advancement of Racial and Ethnic Equality of the American Council on Education, the Division III President's Council of NCAA, ProPAC, and the New York State's Commissioner's Advisory Council on Higher Education. He was advisor to the Joint Special Representative of the African Union—United Nations Mission in Darfur (UNAMID)—the then-largest peacekeeping operation in the world. As a leader in the field of education, he has served in several capacities, most notably as the tenth president of Manhattanville College and as the Interim Dean of the Patel College of Global Sustainability at USF. Previously, he was the executive vice president of NYU Medical Center and professor of health care management at the NYU School of Medicine. He is currently a member of the National Academy of Medicine and serves on the boards of EmblemHealth and the Savannah Centre for Diplomacy, Democracy and Development in Abuja, Nigeria, and expert consultant to the Joint Research Center of the European Union. He received his B.B.A., M.B.A., and M.P.H. from the University of Michigan in Ann Arbor and holds honorary doctorates from Manhattanville College and New York Medical College.



PETER BRIDENBAUGH

Peter Bridenbaugh is a professor in the institute and was an executive vice president of Alcoa until his retirement in 1998. After receiving a bachelor's degree in mechanical engineering and a master's degree in metallurgy from Lehigh University and a Ph.D. in materials science from the Massachusetts Institute of Technology (MIT), he joined Alcoa in 1968. At Alcoa, he served as the executive vice president and chief technical officer of Alcoa Laboratories, leading all of the R&D, engineering, and health and safety operations. In 1994, he was assigned direct responsibility for Alcoa's automotive market operations as well, where he was instrumental in expanding the use of aluminum in automobiles and integrating Alcoa's technical and commercial initiatives in the automotive market. Bridenbaugh has shared his technical expertise by serving on various corporate and advisory boards, acting as the double subject editor—corrosion and nonferrous metals—for the Encyclopedia of Materials: Science and Technology, and serving on the advisory committee for writing the history of Corning, Inc. He has chaired national conferences for the Federation of Materials Societies and the Industrial Research Institute (IRI). He is a member of the National Academy of Engineering; Sigma Xi; the American Institute of Mining, Metallurgical, and Petroleum Engineers; the American Society for Metals (ASM); The Minerals, Metals and Materials Society (TMS); the Materials Research Society; and IRI. He is also the recipient of various honors, including the National Materials Advancement Award, Federation of Materials Societies; Hoyt Lecture, American Foundryman's Society; Fellow, ASM International; Zae Jeffries Lecture, ASM; Leadership Award, TMS; Alpha Sigma Mu Lecture, ASM-TMS; Andrew Carnegie Lecture, ASM; Distinguished Lecture on Materials and Society, ASM-TMS; and ASM Honorary Membership.



ROBERT H. BYRNE

Robert H. Byrne is a Distinguished University Professor in the College of Marine Science at USF and a professor in the institute. He holds a B.S. degree in physics from the University of Chicago, an M.S. in physics from DePaul University, an M.A. in chemistry from Boston University, and a Ph.D. in oceanography from the University of Rhode Island. He has made important contributions in the field of marine physical chemistry—specifically, investigating the speciation of trace metals in seawater, developing new procedures for characterizing the carbon dioxide (CO₂) system in aqueous environments, and designing new instrumentation for measuring nutrients, trace elements, and CO₂ system constituents in freshwater and seawater. His field research has included more than 560 days at sea in the Atlantic, Pacific, Indian, and Arctic Oceans, and the Gulf of Mexico. He holds 17 U.S. patents and is one of the four co-founders of Ocean Optics, Inc (now Ocean Insight). He has written 240 peer-reviewed publications, serving as first or second author on two-thirds of these. He has also served as a reviewer and editor for various agencies and academic journals, including three decades as an associate editor for the journal *Geochimica et Cosmochimica Acta*. He is a fellow of the American Geophysical Union, the American Association for the Advancement of Science, and the National Academy of Inventors, and was elected to the Academy of Science, Engineering and Medicine of Florida.



WILLIAM CAVANAUGH III

William Cavanaugh III is a professor emeritus in the institute and was the chairman and CEO of Progress Energy until his retirement in 2004. After completing his B.S. in mechanical engineering at Tulane University in 1961, he joined the U.S. Navy and became a nuclear submarine officer. Upon his honorable discharge, he began his long and productive career in the utility industry, holding key executive positions at Arkansas Power & Light, Louisiana Power & Light, and Mississippi Power & Light. His success in guiding these companies led to his taking over Carolina Power & Light, where he served as president and COO and later as CEO and chairman, leading the company to financial success and new levels of efficiency in its operations and power generation. In 2000, he negotiated the purchase of Florida Progress Corporation, merging it with CP&L to become Progress Energy, a Fortune 500 energy company serving over three million customers. After his retirement from Progress Energy, he became chairman of the World Association for Nuclear Operations, where he oversaw the institution of a mandatory peer review process for member organizations, among other initiatives. He was elected as a member of the National Academy of Engineering in 2001 for “contributions to excellence in the generation of electricity from nuclear power by establishing and achieving exemplary levels of performance.” He has received the William S. Lee Award for Industry Leadership from the Nuclear Energy Institute and the Walter H. Zinn Award from the American Nuclear Society.



SELIM CHACOUR

Selim Chacour is a professor emeritus in the institute and was the principal founder of American Hydro Corporation, which, under his leadership, became an industry leader in hydro turbine upgrades. In his industry, he is hailed for various improvements to the design of turbine components and for completely revolutionizing runner design by creating computer design programs that obviated the need for physical model testing, the previous standard. This work had a great impact on hydro plants already in existence, allowing them to upgrade their facilities and improve performance. His turbine runner designs have been used in such iconic structures as the Aswan High Dam in Egypt and the Hoover Dam in the United States. Additionally, his designs have generated concrete improvements in efficiency, resulting in gains in power generation and reductions in costs and environmental impact. Lauded as a visionary, he was elected as a member of the National Academy of Engineering “for pioneering three-dimensional finite element computations in mechanical and hydraulic design, leadership in hydro turbine research and development, and business stewardship,” highlighting his status as an innovator and as a business leader. He is also the recipient of the National Hydropower Association’s Henwood Award, the industry’s highest honor, and holds eight U.S. patents for his work. In 2015, he became a Fellow of the National Academy of Inventors.



DAVID M. EDDY

David M. Eddy is a professor in the institute and a physician, mathematician, and health care analyst who has done seminal work in mathematical modeling of diseases, clinical practice guidelines, and evidence-based medicine. In summarizing his career, the National Academy of Medicine (of which he is a member) emphasized his innovative thinking and practices, noting that “more than 45 years ago, Eddy wrote the seminal paper on the role of guidelines in medical decision-making, the first Markov model applied to clinical problems, and the original criteria for coverage decisions; he was the first to use and publish the term ‘evidence-based.’” He was a professor at Stanford University and the J. Alexander McMahon Professor at Duke University before he left academia to become an independent researcher and entrepreneur. He founded Archimedes Inc., a health care modeling company, and was chief medical officer until he retired in 2013. The author of five books and more than 100 first-authored papers, including a series of 28 in the *Journal of the American Medical Association*, his writings span from technical mathematical theories to broad health policy topics. He has received national- and international-level awards in applied mathematics, health technology assessment, health care quality, environmental sciences, and outcomes research, as well as awards from five national and international organizations for lifetime achievement. In 2012, he was ranked the 13th most innovative person in health care by “Health Future 100.” In 2015, he became a Fellow of the National Academy of Inventors, and he was named a President’s Fellow by the University of South Florida in 2019.



MICHAEL W. FOUNTAIN

Michael W. Fountain's extensive experiences of over 40 years as a leader in the fields of biotechnology, drug delivery and entrepreneurship education have provided him a deep understanding of the processes of innovation. In the field of biotechnology, he is a pioneer in micro- and nano-drug delivery, starting in industry as a founder of the Liposome Company in 1981, his team developed and launched Doxil and Ambisome, the first FDA approved liposomal human products. After 17 years in industry with numerous successful start-ups, three becoming public companies, he joined the University of South Florida serving in various administrative and faculty roles as a member of the President's Cabinet, Executive Director of the Research Foundation, Founding Director of the Center for Entrepreneurship and Director of the Tampa Bay Research Innovation Center at CAMLS. He was the founding John and Beverley Grant Chair in Entrepreneurship in the Muma College of Business and held professorships in the Morsani College of Medicine, the Taneja College of Pharmacy and the USF College of Engineering. He is both a prolific researcher with over 80 publications and a book "Launching Successful Ventures" receiving the USF Distinguished Faculty Research and Innovation award, world renowned inventor holding over 100 US and international patents and a Fellow in the National Academy of Inventors, and a distinguished academic leader in entrepreneurship education recognized as a Longenecker Fellow by USASBE. His efforts have led to the establishment of one of the top ranked entrepreneurship education programs in the world at USF recognized by both the AACSB as a top 15 program worldwide and by the Princeton review as a top 25 programs for 15 consecutive years prior to his retirement from USF in 2020. His innovations include worldwide over 150 human and animal healthcare products using his patents. He has led nationwide entrepreneurship efforts working as an Entrepreneur-in-Residence with the Ewing Marion Kauffman Foundation, serving as an Officer in USASBE, and on Boards of Public and Private organizations in the USA. He received his Honors BS from Samford University, MS and Ph.D. from Auburn University and MBA from Bristol University.



RICHARD D. GITLIN

Richard D. Gitlin is a USF Distinguished University Professor Emeritus, an expert witness in Intellectual Property litigation and a professor in the institute. He has more than 50 years of leadership in the communications industry and in academia, with a record of sustained significant research contributions. He received a BEE (with honors) in electrical engineering from The City College of New York in 1964, an MSEE in 1965, and a Doctor of Engineering Science in 1969, both from Columbia University. His research was in the area of adaptive signal processing using early machine learning techniques. He was at Bell Labs for 32 years, where he was the co-inventor of breakthrough Digital Subscriber Line (DSL) technology that enabled megabits on ordinary telephone lines and create the broadband era and a pioneer in the application of advanced spatial signal processing (now known as MIMO) that has revolutionized the performance of wireless systems. He retired from Bell Labs as Senior Vice President for communications and networking research, an international organization of over 500 professionals. Next, he was CTO for Hammerhead Systems, a venture-funded Silicon Valley company and he also served on the Board of Directors of PCTEL. He joined USF in 2007, where he was a Distinguished University Professor, State of Florida 21st Century World Class Scholar, and the Agere Systems Endowed Chair in Electrical Engineering. At USF his research had two themes: (1) the intersection of communications with medicine to advance minimally invasive robotic surgery and other cyber-physical health care systems and (2) creating foundational wireless technologies directed towards broadband speeds, ultra-reliability, and low latency for 5G/6G wireless and IoT (Internet of Things). He is an elected member of the National Academy of Engineering, Fellow of the American Association for the Advancement of Science, member of the Academy of Science Engineering and Medicine of Florida, Fellow of Institute of Electrical and Electronics Engineers, a Bell Laboratories Fellow, Charter Fellow of the National Academy of Inventors, co-recipient of the Thomas Alva Edison Patent Award and the IEEE S.O. Rice Prize, and member of the Florida Inventors Hall of Fame. Co-author of a graduate text on digital communications, published more than 150 papers, and holds 75 U.S. patents.



D. YOGI GOSWAMI

D. Yogi Goswami is Distinguished University Professor, director of the Clean Energy Research Center at USF, and a professor in the institute. His research focuses on solar energy fundamentals and applications, energy storage, thermodynamics, indoor air quality (IAQ) and HVAC. He is editor-in-chief of *Solar Compass*, *Journal of the International Solar Alliance* and author/editor of 23 books and 424 refereed papers. He also holds 36 U.S. patents, some of which have been commercialized around the world. He is a National Academy of Inventors Charter Fellow and a 2016 inductee of the Florida Inventors Hall of Fame. He is also a Fellow of AAAS, ASME International, ASHRAE, the International Solar Energy Society (ISES), and the American Solar Energy Society (ASES), as well as a member of the Pan American Academy of Engineering and Academy of Science, Engineering and Medicine of Florida. He has received the ISES' Farrington Daniels Award, ASME's Frank Kreith Energy medal, ASME's John Yellott Award for Solar Energy, the ASES' Charles Greely Abbott award, and more than 50 additional awards from various scientific and engineering professional societies. Most recently he received the Joan Hodges Queneau Palladium medal of the American Association of Engineering Societies and the National Audubon Society for Engineering Achievements for Environmental Conservation. He has served as a governor of ASME-International (2003-2006), president of the ISES (2004-2005), senior vice president of ASME (2000-2003), and president of the International Association for Solar Energy Education (2000-2002). He is a member of the Board of Directors of the Pan American Academy of Engineering and also the Academy of Science, Engineering and Medicine of Florida.



DONALD KECK

Donald Keck is a professor in the institute and was the vice president and executive director of research at Corning, Inc. He has a B.S., M.S., and Ph.D. in physics from Michigan State University (MSU). After graduation, he was hired by Robert Maurer at Corning Inc. in 1968. Working with Maurer and Peter Schultz over the next two years, he made seminal contributions to fiber optics. Inventing a series of material and processing concepts, they were able to improve the transparency of silica and doped silica glasses by a remarkable 100 orders of magnitude. This enabled optical fiber communications and without which, today's Internet would not exist. More than 7 billion kilometers of optical fiber based on their inventions encircle the planet. Keck is recognized as a pioneer in optical fiber communications for this work. Continuing at Corning, he became vice president and director of research, retiring in 2002. He then helped establish the Infotonics Technology Center in Canandaigua, New York. He holds 38 patents and has authored more than 150 papers on optical fibers and related topics. Keck is a member of the National Academy of Engineering and Fellow of the National Academy of Inventors. He was awarded the National Medal of Technology by President Clinton; inducted into the National Inventors Hall of Fame; and received Optica and IEEE/Photonic Society Tyndall Award; U.S. Department of Commerce American Innovator Award; SPIE Technology Achievement Award; and Laurin Publishing's Distinction in Photonics Award. He received an honorary doctorate from Rensselaer Polytechnic Institute, is an honorary member of Optica (OSA), and a Fellow of the IEEE. He served as editor of the IEEE/Optica *Journal of Lightwave Technology*. He has generously donated time to both the technology and wider communities. As a supporter of Steuben County Chapter American Red Cross, the Elmira-Corning Community Foundation, the Corning Salvation Army, he has served on their Boards. A member of Rotary International for over 30 years, he enjoys working on their community service projects. With spouse, Ruth, of 57 years they have two grown children, Lynne and Brian, both engineers, and two grandchildren, Annika and Arim.



DENNIS K. KILLINGER

Dennis K. Killinger is a USF Distinguished University Professor Emeritus in the Department of Physics, past Director of the Lidar Remote Sensing Laboratory, and professor in the institute. Prior to joining USF in 1987, he was a research physicist for 10 years at MIT Lincoln Laboratory. He is a Fellow of the National Academy of Inventors, OPTICA/Optical Society of America, AAAS American Association for the Advancement of Science, IEEE Institute of Electrical and Electronics Engineers, and SPIE International Society for Optics and Photonics. He has several hundred publications and nine patents (ranging from enhanced LiDAR detection of tenuous bicycles for autonomous vehicles, laser fluorescence measurements of ocean and drinking water purity, to laser telecommunication using reflected lidar beams from clouds and air). Killinger earned a B.A. from the University of Iowa, M.S. from DePauw University, and his Ph.D. in physics from the University of Michigan. Killinger was an early pioneer in the development and application of new high-resolution tunable lasers and their use in laser radar/Lidar and laser remote sensing of the atmosphere. His group is responsible for some of the major advances in this field, including the first laser remote sensing of atmospheric methane, CO emissions from automobiles, NO, HCl, hydrazine from rocket exhaust, ammonia gas emissions from farm fertilizers, precision measurements of CO₂ in the atmosphere, the detection of parts-per-trillion trace plastics (BPA) and organics leached into drinking water, and remote laser-induced-breakdown spectroscopy of explosives. Killinger's laser lidar technique to measure CO₂ in the atmosphere is now used by NASA and the European Space Agency for global measurements of this important greenhouse gas. At the request of the State of Florida State Police, his group at USF developed research and testing protocol of all new Laser Radar/Lidar systems for traffic and automobile speed detection, helped rewrite the Florida vehicle radar detection laws, and established the first sanctioned vehicle traffic laser radar testing and calibration laboratory in Florida. His group also developed and commercialized the HITRAN-PC © software program used world-wide for spectroscopic prediction of lidar and laser beam transmission through the atmosphere.



RICHARD M. KNAPP

Richard M. Knapp is a professor in the institute and served as Senior Advisor to the President of the Association of American Medical Colleges (AAMC) until December 2009, having stepped down as Executive Vice President of the organization in 2008. During his long and distinguished career, he has been active in all health policy matters in the context of providing hospital and medical services in which medical education can be provided and research can flourish. For many years he served as chairman of the Ad Hoc Group for Medical Research Funding, the major coalition supporting increased appropriations for the National Institutes of Health. He is past chairman of the National Association for Biomedical Research and has held the offices of secretary and treasurer in the Federation of Associations of Schools of the Health Professions. He served on the Board of Trustees of the Inova Health System in Fairfax County, Virginia from 1983–2005 and was chairman from 1999–2003. He served as a member of the Board of Directors of West Virginia University Hospitals East in Martinsburg and Charles Town, West Virginia (2009–2016). Before becoming executive vice president of the AAMC, he was senior vice president, director of the Department of Teaching Hospitals, director of the Division of Teaching Hospitals, and director of a teaching hospital project. Previously, he served as an instructor in the University of Iowa's graduate program in hospital and health administration. He was awarded his Bachelor of Arts degree from Marietta College, Marietta, Ohio in 1963 and received his Ph.D. degree in 1968 from the University of Iowa graduate program in hospital and health administration. He is a member of the National Academy of Medicine.



FRED LEONBERGER

Fred Leonberger is a professor in the institute and the Principal of EOvation Advisors, his technology and business advisory firm. He is a widely known photonics industry leader. The LiNbO₃ integrated-optic modulator technology he and his colleagues pioneered has been used pervasively for over 20 years for multi-Gb/s data encoding for the fiber optic Internet “super highways”, and for CATV/rf signal transmission and fiber optic gyroscopes. He has served as a co-founder and/or Board member/advisor for ten photonics companies and the MIT Center for Integrated Photonic Systems. Previously, he served as SVP/CTO of Uniphase (then JDSU, now Lumentum), a leading optical components supplier, where he was responsible for strategic technology and was closely involved in the M&A and IP activities of the corporation. He joined Uniphase upon its acquisition of UTP, an optical modulator company he co-founded and served as General Manager. Prior to UTP, he was a research manager at the United Technologies Research Center; his group did pioneering work in optical modulators and fiber Bragg gratings. He was initially with MIT Lincoln Laboratory where he developed a variety of optoelectronic devices, first as a staff member and later as a group leader. He has over 160 archival publications/conference presentations and 20 patents on photonic devices and their applications. He is a member of the National Academy of Engineering and the Florida Academy of Science, Engineering and Medicine, a Fellow of IEEE, Optica and the National Academy of Inventors, and has received the IEEE Photonics Award, the Optica Richardson Medal, and numerous other industry awards. He has served as President of the IEEE Photonics Society, chairman of several IEEE/Optica conferences and associate editor of two photonics journals. He received the B.S.E. degree from the University of Michigan, and the S.M., E.E., and Ph.D. degrees from the Massachusetts Institute of Technology, all in electrical engineering.



STEPHEN B. LIGGETT

Stephen B. Liggett is associate vice president for research at USF Health, vice dean for research at the Morsani College of Medicine, professor of internal medicine and molecular pharmacology and physiology and a professor in the institute. He discovered and characterized receptor polymorphisms. He was the first to discover polymorphisms of the G-protein coupled receptor superfamily, to which more than 50% of all drugs are targeted. This discovery moved the field of pharmacogenomics from one that concentrated on metabolizing enzymes to one that includes target proteins for determining drug responsiveness. He also developed biotechnical companies related to personalized medicine based on these discoveries. His fundamental studies in humans and genetically altered mice have led to new advances in the areas of heart failure, hypertension, and obstructive lung diseases. He holds 17 U.S. patents and has more than 250 publications. He is a Fellow of the American College of Chest Physicians, the National Academy of Inventors, American Association for the Advancement of Science, and the American Institute for Medical and Biomedical Engineering as well as the recipient of the Frontiers in Pharmacology Award from Case Western Reserve University and Excellence in Science Award from Thomas Jefferson University.



CHARLES J. LOCKWOOD

Charles J. Lockwood is Executive Vice President (EVP) for USF Health, Dean of the Morsani College of Medicine, and Professor of Obstetrics & Gynecology and Public Health at the University of South Florida; and an EVP at Tampa General Hospital. Previously he was Dean at The Ohio State University College of Medicine—where he received the Clotilde Dent Bowen Diversity and Inclusion Leadership Award, and chaired Ob/Gyn departments at Yale and New York Universities. He graduated magna cum laude from Brown University, received his M.D. from the University of Pennsylvania and a Master's in Healthcare Management from Harvard School of Public Health. He's published over 315 peer-reviewed publications (Google H-index of 90; 31,446 citations); several patents; 290 editorials, chapters and invited reviews; and co-edited 6 textbooks, 3 with multiple editions. He led the research team that discovered fetal fibronectin as a predictor of impending preterm birth, and discovered the role of decidual cell tissue factor expression in regulating endometrial hemostasis and menstruation. He served as the long-standing Editor-in-Chief of Contemporary OB/GYN, where his editorials won six national publication awards; chaired and/or served on numerous NIH and FDA review panels; multiple American College of Obstetricians and Gynecologists committees; several journal editorial boards; as examiner for the American Board of Obstetrics and Gynecology; and serves on the LCME, the allopathic medical school accreditor. He served as president of the Society for Reproductive Investigation and the American Gynecological and Obstetrical Society, and on boards of the March of Dimes and Society for Maternal-Fetal Medicine Foundation. His awards include election as a member of the National Academy of Medicine; Fellow of AAAS; election to Phi Beta Kappa, Sigma Xi, and Alpha Omega Alpha honor societies; received the SRI's Distinguished Scientist Award, the NICHD Frontiers in Reproduction Beacon Award, the SMFM Lifetime Achievement Award, and University of Maryland Dean's Distinguished Gold Medal. He additionally has been named to national and regional "Best Doctors" lists annually since 1995, and received the ACOG Public Service Award for his "enduring commitment to women's health." He maintains an active research lab at USF with NIH funding and is a professor in the institute.



DEAN F. MARTIN

Dean F. Martin is Distinguished University Professor Emeritus at USF, where he has been a member of the faculty since 1964, and a professor in the institute. Previously, he was a member of the faculty of the University of Illinois as instructor and assistant professor of inorganic chemistry. He and his wife, Barbara B. Martin, shared research interests concerned with the coordination chemistry of natural water systems, including problems of red tide and aquatic weeds. The Martins were editors of the *Florida Scientist* from 1984–2010. He is the author or co-author of over 450 publications, including six books. He received his B.A. from Grinnell College and his Ph.D. from the Pennsylvania State University. In 1958–59, he was a National Science Foundation postdoctoral fellow at University College London. He later received a Career Development Award from the Division of General Medical Sciences, National Institutes of Health, to study the chemistry and chemical environment of algal toxins. In 1970–71, he was a visiting professor of physiology and pharmacology at Duke University Medical Center. He is the recipient of the Grinnell College Alumni Award (1971), Florida Award, the Civic Service Award of the Florida Section, and the F. J. Zimmermann Award in Environmental Science from the Central Wisconsin Section, sponsored by Zimpro Inc. He is also a Lifetime Member and Fellow of the American Association for the Advancement of Science and the National Academy of Inventors. Dean and Barbara Martin were the co-recipients of the 1994 Medal of the Florida Academy of Sciences, its highest award. He has been active in the American Chemical Society, and he has held several positions in the Aquatic Plant Management Society.



SUMITA B. MITRA

Sumita B. Mitra is a Partner at Mitra Chemical Consulting LLC, an independent consulting firm she co-founded, and a professor in the institute. Previously she worked for over 32 years at 3M Company as Corporate Scientist in the 3M Oral Care Division. She led the new materials/products research and development efforts of that business until her retirement. For over ten years she served as Industrial Director of the Minnesota Dental Research Center of Biomaterials and Biomechanics at the School of Dentistry, University of Minnesota. Dr. Mitra is the creator and inventor of many new materials technologies and the developer of several new product segments for the dental and orthodontic market. Her inventions have been translated into the commercialization of numerous novel and innovative products for oral care. Her expertise is also in the management of innovation and new product/technology commercialization processes. She is the recipient of 100 US patents and their corresponding OUS equivalents and has numerous publications (100+) in the areas of polymer science, nanocomposites and dental materials, including 12 chapters in 9 books. She is an internationally recognized lecturer on these topics and has given numerous presentations and courses in various universities and colleges in 45 countries. Dr. Mitra received her Ph.D. in Organic/Polymer Chemistry from University of Michigan followed by postdoctoral work at Case Western Reserve University in Macromolecular Science. She has received numerous honors and awards among which are: Induction into the National Inventors Hall of Fame, Election to the National Academy of Engineering, Recognition from the EPO Inventors Award, American Chemical Society Heroes of Chemistry Award, Peyton-Skinner Award for Innovation in Dental Materials and Hollenback Memorial Prize from the Academy of Operative Dentistry. She was elected as a Fellow of the National Academy of Inventors in 2021. She is a guest lecturer at University of Minnesota, School of Dentistry. Her passion is in mentoring activities for STEM education at all levels.



SHYAM S. MOHAPATRA

Shyam S. Mohapatra is a Distinguished USF Health Professor and Director of the USF Center for Research and Education in Nano-bioengineering at the University of South Florida. He also serves as a Senior Research Career Scientist at the James A. Haley VA Hospital in Tampa. Since 2014, he has served as Associate Dean of Graduate Programs at the USF Health Taneja College of Pharmacy and established a highly innovative Master of Science program in pharmaceutical nanotechnology with six concentrations including one in Drug Discovery and Development and another in Biomedical engineering. He has published over 250 papers and holds over 50 U.S. and foreign patents. He is recognized for his many inventions in the field of nanoscale biomedical diagnostics and therapeutics in cancers, asthma, viral infections, and traumatic brain injury. In cancers, his inventions and co-inventions have led to several technology platforms and products for innovative anti-cancer drug discovery, drug development, and personalized cancer treatment. His research has spawned inventions that have spun out companies. He co-founded Transgenex Nanobiotech Inc, and Agile Life Sciences as USF spin-out companies that focus on commercializing nanoscale innovations. He is a Charter Fellow of the National Academy of Inventors; a Fellow of the American Academy of Allergy, Asthma & Immunology; American Association of Medical and Biological Engineers; and American Association of Advancement of Science; and is an inaugural inductee of the Florida Inventors Hall of Fame. He also was a 2020 Florida Academy of Sciences Medalist for his contributions in the area of Nanoscience and Nanotechnology education and research in the State of Florida.



VIVIAN W. PINN

Vivian W. Pinn is a professor in the institute and was the inaugural full-time Director of the Office of Research on Women's Health at the National Institutes of Health (NIH), and Associate Director of NIH from 1991 until her retirement in 2011. She also served as a Senior Scientist Emerita at the NIH Fogarty International Center from 2011 until 2023. Prior to NIH, she was Professor and Chair of Pathology at Howard University College of Medicine—the third woman in the U.S. to serve as an academic Pathology Chair. She previously held teaching appointments at Harvard Medical School, having completed her post-graduate training at Massachusetts General Hospital, and Tufts University. She is a Fellow of the American Academy of Arts and Sciences and was elected a member of the National Academy of Medicine (NAM) in 1995. A graduate and former trustee of Wellesley College, she earned her M.D. in 1967 from the University of Virginia School of Medicine. She just completed two terms on the Board of Trustees of Thomas Jefferson University, and currently serves on the Boards of Advisors of the Sidney Kimmel Cancer Center at Jefferson, Tufts University School of Medicine and the KGI School of Medicine. She has received 17 Honorary Degrees of Science, Law, and Medicine. She was the first African American woman elected to Modern Healthcare's Hall of Fame. The University of Virginia School of Medicine has named one of its four advisory medical student colleges as "The Pinn College," and also renamed its medical research and education building as "Pinn Hall." Recent honors include the 2020 American Medical Association's Distinguished Service Award, the 2021 Distinguished Service Award from the Association of Pathology Chairs, and Research!America's Outstanding Achievement in Public Health Award in 2022. Lectures in women's health named for her have been established at the NIH, the National Women's Health Congress, and the National Medical Association of which she served as the 88th President. Her oral history is included in the National Library of Medicine's exhibit on women physicians, *Changing the Face of Medicine*; in the University of Virginia's project *Explorations in Black Leadership*; The HistoryMakers collection which is now housed in the Library of Congress; and in the Oral Histories of Living Legends series of the Roundtable on Black Women and Black Men in Science, Engineering and Medicine of the NAM, and of the Women in Medicine Legacy Foundation of the New York Academy of Medicine.

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Being a member
of the Institute for
Advanced Discovery
and Innovation has
proven to be a very
positive experience
for me. I was given the
privilege of working with
exceptional individuals
who provided their
significant knowledge
and experience in their
roles as advisors and
mentors to the student
body and faculty.

—Victor Poirier

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VICTOR POIRIER

Victor Poirier is professor at the Institute for Advanced Discovery and Innovation at the University of South Florida. He was the former CEO and president of two public companies, Thermedics and Thermo Cardiosystems both of which traded on the American Stock Exchange. He was also chief Technology Advisor of Thoratec Corp. He is internationally recognized as a pioneer for the design, development, and commercialization of first- and second-generation HeartMate implantable left-ventricular assist systems for treating heart failure. He is a founding fellow of the American Institute for Medical and Biological Engineering and the International Academy of Artificial Organ Pioneers of the International Center for Medical Technologies, a Fellow of the National Academy of Inventors, and a member of the National Academy of Engineering. He is the recipient of the Mediterranean Institute of Cardiology Award (France), the Himet Award, the Barney Clark Award from the American Society for Artificial Internal Organs, was elected by his peers as the national “Engineer of the Year” (Design News, 1992), and received an honorary Doctor of Engineering from the University of South Florida. He was honored twice as a Distinguished Engineering Alumnus of Northeastern University as well as the Hastings Lecturer at the National Heart, Lung and Blood Institute of the National Institute of Health as well as receiving many other awards. To document Mr. Poirier’s accomplishments, the National Library of Medicine in Washington DC created a documentary video of his lifelong experience as a pioneer in the development of artificial heart technology. A permanent record of this video was deposited at the Smithsonian Institute Archives, the National Library of Medicine and the Smithsonian’s National Museum of American History. He holds 22 US patents and has published over 120 papers in refereed journals. He is currently exploring ways to teach innovation and innovative thinking practices and was lead author on a publication exploring that topic.



PAUL R. SANBERG

Paul R. Sanberg is Distinguished University Professor in the Department of Neurosurgery and Brain Repair, USF Morsani College of Medicine and the Founder of the USF Institute for Advanced Discovery & Innovation. He was also former Senior Vice President for Research & Innovation at USF, where he has worked for 32 years. He was one of the original pioneers in the discovery and use of adult stem cells to repair the brain and nervous system. He helped lead the team who found that stem cells could be safely and ethically obtained from human umbilical cord blood, and developed procedures for intravenous delivery that could penetrate the blood-brain barrier. His research also revealed brain areas damaged by stroke or neurological disease were able to be regenerated—a discovery reversing centuries of scientific understanding. He is a highly cited author, and his more than 700 articles and 14 books have received more than 40,000 citations. He has been granted 170 U.S. and foreign patents, a number of which have been licensed, and developed many pharmaceutical and cellular therapeutics based on his research. He holds numerous awards for his work, including being named Fellow of the National Academy of Inventors; American Association for the Advancement of Science; Sigma Xi; American Institute for Medical and Biological Engineering; IEEE; Biomedical Engineering Society; Royal Societies of Chemistry, Public Health, Biology and Medicine; American Psychological Association; International Behavioral Neuroscience Society; and American Society for Neural Therapy and Repair. He has also received significant awards including the George F. McClure Citation of Honor from IEEE-USA, and a Pioneer Award from the Florida Inventors Hall of Fame, of which he is an Inductee. He is the founder and President of the National Academy of Inventors. He earned his B.S. degree, with honors, from York University (Canada); his M.S. degree from the University of British Columbia (Canada); and his Ph.D. and D.Sc. degrees from the Australian National University.



SUDEEP SARKAR

Sudeep Sarkar is a USF Distinguished University Professor, Chair of Computer Science and Engineering, and a professor at the institute. He has over 35 years' experience conducting and directing fundamental and applied research in artificial intelligence, particularly computer vision and pattern recognition. He developed a new imaging device that can collect data about the physical characteristics of human skin in terms of its color, texture, and elasticity, which is critical in diagnosing diseases such as melanoma or quantifying wounds and burn scars. He is also a pioneering leader in gait biometrics, a field that analyzes and catalogs the unique characteristics of how individuals walk. This development for identity detection has potential uses in security and threat assessment, as well as intelligent internet-of-things devices and smart rooms. He is also a leader in developing recognition systems to translate sign language videos into text sentences to facilitate communication between hearing-impaired and hearing individuals. He holds 10 U.S. patents, licensed technology, and published high-impact journal and conference papers. He received his M.S. and Ph.D. in electrical engineering on a University Presidential Fellowship from The Ohio State University, and received the National Science Foundation CAREER award. He is a co-Editor-in-Chief of *Pattern Recognition Letters*, a top-10 journal in computer vision and pattern recognition. He was the President of the IEEE Biometrics Council. Dr. Sarkar is an outstanding educator, recognized by the USF Teaching Incentive Program Award for Undergraduate Teaching Excellence, Outstanding Undergraduate Teaching Award, and the Theodore and Venette Askounes-Ashford Distinguished Scholar Award. He has directed 22 Doctoral and 23 Master's students. The Florida Education Fund awarded him the William R. Jones Outstanding Mentor Award. He is a Fellow of the National Academy of Inventors, American Association for the Advancement of Science, American Institute for Medical and Biological Engineering, IEEE, and International Association for Pattern Recognition; and charter member and member of the Board of Directors of the National Academy of Inventors.



STEVEN J. SASSON

Steven J. Sasson is a professor in the institute and was a project manager in the Intellectual Property Transactions group at Kodak before retiring in 2009. He received his B.S. and M.S. degrees in electrical engineering from Rensselaer Polytechnic Institute (RPI) in Troy, N.Y. He joined Eastman Kodak Company as an electrical engineer in 1973 and began working in the Kodak Apparatus Division applied research laboratory. He engaged in a number of early digital imaging projects. Among these was the design and construction of the first digital still camera and playback system in 1975. He continued to work throughout the 1980s in the emerging field of digital photography, receiving over 10 key digital imaging patents. In 1989, he led the development of the first prototype megapixel electronic digital camera utilizing DCT compression that stored images to flash memory cards. In the 1990s he developed one of the first photographic quality thermal printing systems, derivatives of which are still in use in self-service imaging kiosks around the world today. He has received numerous recognitions for his work, including his 2011 induction in the National Inventors Hall of Fame, 2009 Economist Magazine Consumer Products Innovation Award, selection as an AAAS-Lemelson Invention Ambassador, and the U.S. National Medal of Technology and Innovation, which he received in 2009 from President Obama.



LYLE H. SCHWARTZ

Lyle H. Schwartz is a professor in the institute and retired director of the Air Force Office of Scientific Research. He was formerly professor of materials science and engineering at Northwestern University for 20 years and director of Northwestern's Materials Research Center for five of those years. He then became director of the Materials Science and Engineering Laboratory at the National Institute of Standards and Technology (NIST), where he served for more than 12 years. After NIST, he moved to the Air Force Office of Scientific Research, where, as director, he had responsibility for the entire basic research program of the Air Force. He has played a significant role in shaping government policies on many materials issues. He was elected as a member of the National Academy of Engineering for "leadership in materials research and in coordinating industry and government collaboration in materials engineering." He is a recipient of the Presidential rank of Meritorious Executive of the government's Senior Executive Service, the Gold Medal Award of the Department of Commerce, the National Materials Advancement Award of the Federation of Materials Societies, and the Leadership Award of the Minerals, Metals, and Materials Society. His current interests include government policy for R&D, particularly for materials R&D, materials science education (STEM) at K-12 levels, and enhanced public understanding of the roles and importance of technology in society. He is participating in the HIBAR Research Association and its management group as part of his commitment to USF and the institute.



KRIS SINGH

Kris Singh is a professor in the institute, and Founder, President and CEO of Holtec International, a multi-national company with its business footprint in 18 countries on 5 continents. He received his Ph.D. in Mechanical Engineering, and M.S. in Engineering Mechanics from the University of Pennsylvania, and a B.S. from BIT Sindri (Ranchi University), India. He is also a widely-published author in scientific journals (>70 technical papers, 1 textbook, and numerous symposia) and prolific inventor (194 patents). He has led Holtec in developing a "walk away safe" small modular reactor to make nuclear energy an economical "green power" alternative. He is a registered Professional Engineer in Pennsylvania and Michigan, and a member of the American Nuclear Society. His distinguished awards include election as a member of the National Academy of Engineering for his seminal impact in the energy sector of mechanical engineering; member of the Pan American Academy of Engineering; Edison Foundation's Thomas Alva Edison Award for ecologically and environmentally impactful inventions; and Rutgers University's South Jerseyan of the Year Award for his significant beneficial impact on the South Jersey region. He is Fellow of the National Academy of Inventors and American Society of Mechanical Engineers for numerous contributions to heat exchange technologies; and an inductee of the University City Science Center (Philadelphia) Walk of Fame, and Florida Inventors Hall of Fame. An Emeritus member of the University of Pennsylvania's board of trustees, he currently serves on the university's Board of Overseers for the School of Engineering and Applied Science. Additionally, he serves on the boards of the Nuclear Energy Institute, and Cooper Health System; is director of the Washington, DC-based Atlantic Council; and member of the National Investment Council that advises the President of Ukraine. An intrepid entrepreneur and socially conscious industrialist, he built a \$310 million Technology Campus on the Delaware River in Camden, NJ to create much needed employment in one of America's poorest cities. He chairs the KPS Foundation, a charitable Singh family foundation whose signature contribution to the advancement of science is the completion of the "Krishna P. Singh Center for Nanotechnology" (University of Pennsylvania). The KPS Foundation also works to improve child literacy and public sanitation in India.



CHARLES STANISH

Charles Stanish is executive director of the Institute for the Advanced Study of Culture and the Environment at USF and a professor in the institute. He earned his B.A. from Pennsylvania State University and his Ph.D. from the University of Chicago. He has worked extensively in Peru, Bolivia, and Chile, conducting archaeological research on the prehistoric societies of the region. His theoretical work focuses on the roles that trade, war, ritual, and labor organization play in the evolution of human cooperation and complex societies. His primary books include *The Evolution of Human Co-operation* (2017), *Ancient Titicaca: The Evolution of Complex Society in Southern Peru and Northern Bolivia* (2003), *Ritual and Pilgrimage in the Ancient Andes* (with B. Bauer, 2001) and *Ancient Andean Political Economy* (1992). He also works with a sustainable development group to preserve global cultural heritage through a combination of micro-lending, direct community grants, and tourist infrastructure development. He was a Senior Fellow at Dumbarton Oaks Research Library, is an External Faculty member of the Santa Fe Institute, Fellow of the American Academy of Arts and Sciences and member of the National Academy of Sciences.



JOHN A. SWANSON

John A. Swanson is the founder of ANSYS, Inc., the global innovator of simulation software and technologies designed to optimize product development processes, and a professor in the institute. He founded ANSYS, Inc. (then Swanson Analysis Systems, Inc.) in 1970 to develop, support and market the ANSYS simulation software program, growing it to the multi-solution successful organization it is today. Prior to ANSYS, Inc., he was employed at Westinghouse Astronuclear Laboratory as Manager of the Stress Analysis Group. There he developed a series of special purpose simulation codes and foresaw the need for an integrated general-purpose finite-element software code to do complex engineering calculations. He holds a Ph.D. in Applied Mechanics from the University of Pittsburgh and a B.S. and M.S. in Mechanical Engineering from Cornell University. He also maintains numerous industry, national and local accreditations and awards including the appointment as a Fellow Member and Pittsburgh Engineer of the Year by the American Society of Mechanical Engineers (ASME). He was named as the Entrepreneur of the Year in High Technology by the Entrepreneurial Services Group of Arthur Young and *Venture Magazine*. He has also been inducted into the Engineering Hall of Fame at the University of Pittsburgh. In 2004 he was awarded the John Fritz Medal by the American Association of Engineering; he is a member of the National Academy of Engineering. He currently consults and lectures on renewable energy, with a focus on photovoltaic applications.



JAMES WYNNE

James J. Wynne is a professor in the institute and a senior research scientist at IBM Research Headquarters. After receiving his Ph.D. in applied physics from Harvard University in 1969, he joined IBM Research, initially working at the Zurich Research Laboratory in Switzerland and moving to the T.J. Watson Research Center in New York in 1971. His research contributions have been in nonlinear optics of semiconductors and insulators, nonlinear spectroscopy of atomic and molecular vapors, laser etching and fluorescence studies of human and animal tissue, and cluster science. He and two IBM colleagues discovered excimer laser surgery in 1981, laying the foundation for LASIK and PRK, techniques for surgically correcting myopia, astigmatism, and hyperopia. For this discovery, he has received many awards, including induction into the National Inventors Hall of Fame, the National Medal of Technology and Innovation, and the Russ Prize of the National Academy of Engineering (NAE). He is a member of the NAE, Fellow of the National Academy of Inventors (NAI), member of the USF Chapter of the NAI, and a research collaborator with USF faculty. He holds 13 U.S. patents. His current research encompasses the development of novel applications of the excimer laser, especially its use as a “smart scalpel” for removing necrotic lesions of the skin while minimizing collateral damage to underlying and adjacent viable tissue.



IN MEMORIAM: HARRY P. CAIN II

“In 2023 we saw the passing of our esteemed Institute for Advanced Discovery & Innovation member, Dr. Harry Cain II. We are grateful for the time we had and the privilege of working alongside him. His passion for healthcare policy made an impact at USF, both in his work with faculty and his mentoring of student teams in the Florida Blue Health Innovation Challenge. We celebrate his professional and academic legacy, and above all, his kindness.” —Dr. Sylvia Thomas

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*Your institution is
one I’m honored to be
affiliated with!*

—Dr. Harry Cain II

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INSTITUTE DIRECTOR



Sylvia Wilson Thomas is Vice President for Research & Innovation at the University of South Florida and Professor in Electrical Engineering where she leads the Advanced Materials Bio and Integration Research (AMBIR) laboratory. She previously served as Assistant Dean of the College of Engineering at USF. Dr. Thomas' research and teaching endeavors are focused on the investigation of bio (biomedical, biological) and nano electronic device integration using advanced material systems for nano membrane technology, energy harvesting, sustainable environments, drug delivery, and bio-applications to meet global technological challenges. With over 25 years of global experience in academia and industry, Dr. Thomas has authored or co-authored over 50 publications and six book/book chapters. She holds 13 patents/pending patents and has received over \$4M in funding. Her involvement and constant dedication to STEM education, diversity, and professional development have led to her recognition in local and national news and publications, including Top 50 Women Leaders in Education, Guide to Florida's High Tech Corridor magazine, "The Faces of Technology"; *St. Petersburg Times*, "Recruiter, Role Model, Engineer"; the *United Nations-NGO Briefing* on "Girls and Technology: New Educational Opportunities"; and *Electronic Design* 50th Anniversary Issue among others. Over the course of her distinguished career, she has been recognized with a number of prestigious awards including, National Academy of Inventors Fellow, USF Undergraduate Teaching Award, Women in Leadership and Philanthropy Faculty Research Award, STEM Woman of the Year Award from Pinellas County Girls Inc., USF Graduate Faculty Mentor Award, McKnight Junior Faculty Fellow and more. Dr. Thomas holds B.S. and M.S. degrees in Electrical Engineering from Vanderbilt University, where she was a Patricia Roberts Harris Fellow. She received her Ph.D. in Electrical Engineering from Howard University, as a NSF Materials Research Center of Excellence Fellow and was a National Science Foundation (NSF) research engineer in Korea at Chonbuk National University during her doctoral program.

INSTITUTE MANAGER



Colleen Parker is Assistant Program Director for the USF Faculty Honors Program, and Program Manager for the USF Institute for Advanced Discovery and Innovation (IADI). She leads and manages all strategic initiatives and recruitment for the Institute, and is liaison for the Institute to the university and the wider community, including developing relationships at local, state, national, and international levels, and intra-university collaborations. She also directs the functional, technical, logistical and communications operations for the Faculty Honors Program and the USF I-Corps Site program. Originally from Oregon and New York, she joined USF in 2015, following nearly two decades in senior level positions in proprietary education and information technology solutions firms. She earned her B.A. in International Studies from Willamette University in Salem, Oregon. In addition to her work at USF, she volunteers as President of Seminole Heights Community Gardens.

INSTITUTE FOUNDER

Paul R. Sanberg [see page 12]

IMPACTING USF STUDENTS

Faculty in the Institute for Advanced Discovery & Innovation (IADI) enrich the educational mission of the university by supporting excellence in teaching and learning through active engagement in undergraduate and graduate courses; mentoring student entrepreneurs; and presenting guest lectures on a variety of topics from their unique perspectives as international leaders in science, medicine, engineering, and innovation.

IADI faculty:

Develop projects with USF students in the Judy Genshaft Honors College innovation classes, in service to community partners in Tampa's Uptown Innovation District with the aim to enrich this area located near USF. Most recently, faculty have advised students working on: determining the priorities and decision-making processes of patients when seeking treatment for traumatic brain injury/chronic traumatic encephalopathy; discovering the steps to success pursued by alumni of a standout high school in this area and how that might be shared with the high school; and how to align the priorities of potential donors with the values of stakeholders within a children's hospital ecosystem.



Participate as lecturers and panelists in several courses on campus.

Serve as active instructors and panelists in the USF I-Corps program. USF is home to a National Science Foundation (NSF) Innovation Corps (I-Corps) Site, which provides training for teams of university faculty and graduate student entrepreneurs to identify valuable product opportunities that can emerge from academic research; and provide advice, resources, and networking opportunities to enable teams to transition their work into the marketplace.



Co-lead an additional NSF I-Corps program created specifically for students participating in the USF Student Innovation Incubator and serve as panelists to evaluate students' final presentations.



Share their extensive backgrounds in healthcare to mentor student teams for the annual statewide Florida Blue Innovation Challenge, organized by the USF Muma College of Business Center for Entrepreneurship. This annual competition encourages new ideas and technologies focused on innovative solutions for urgent healthcare issues in Florida.



Serve as facilitators at the annual USF Undergraduate Research Conference—an opportunity for emerging scholars to present their research to the university community and engage with experts in their discipline to not only enhance their educational experience, but also to contribute new knowledge to their future career field.

Participate in pre-college courses for rising high school juniors and seniors from across Florida. These annual courses—including “The Next Physician & Healthcare Professional” and “The Next Scientist & Engineer”—afford guidance and direction for students who work on real-world problems for USF community partner Tampa Innovation Partnership.



IMPACTING USF FACULTY & LEADERSHIP

IADI faculty advance USF's academic and research productivity by collaborating with USF faculty; advising USF leadership; helping envision USF's future trajectory; contributing to curriculum development; and participating as members of university committees and planning groups.

The University of South Florida is an inaugural member of the HIBAR (Highly Integrative Basic and Responsive) Research Alliance, which focuses on projects that are partnerships of academic researchers and societal experts. Critical to this initiative's success, IADI faculty with expertise in this area are lead members of USF's HIBAR Collaborative Action Group, along with top university administrators, and continue to develop USF's response to this global initiative.

IADI faculty serve as partners/mentors/advisors/collaborators with USF faculty on a wide range of ongoing research projects and commercialization initiatives.

IADI faculty mentored an NSF-funded grant project, "PFI:AIR-TT: Point of Care Biosensor for Quantification of Biomarkers in Bodily Fluids Based on Surface Acoustic Waves," conducted by the director of USF's materials science and engineering program.

IADI faculty contribute to new university initiatives to expand educational capacity and collaborations advancing research.



They engage in dialogue with the USF Vice President for Research & Innovation.

They bring together numerous faculty members from across six different departments to create a materials science institute at USF to allow scientists and engineers who share similar interests to better achieve common research goals and enhance educational opportunities for materials science students.



IADI faculty have been invited as Keynote Speakers for prestigious faculty events, such as the Annual Luncheon of the USF Fellows of the American Association for the Advancement of Science, inspiring USF faculty in their pursuit of life-changing research.

IADI faculty provide valuable guidance as a key stakeholder group for USF.

They serve as senior personnel on the USF NSF I-Corps grant. The leadership of the IADI faculty helped

the most recent application for an extension in NSF I-Corps funding, and this additional funding continues the campus-wide efforts to expand the USF I-Corps Site.



IADI faculty contribute to the development of USF's Research Strategic Plan—the result of a year-long strategic planning process to develop a broad vision where USF can have a greater, more far-reaching impact, enhance its national and international reputation and rankings and educate and empower our students. USF was the first university in Florida to create a research-specific strategic plan.



IMPACTING COMMUNITY

Supporting USF's commitment to a steadfast spirit of service to local and global communities, IADI faculty serve as ambassadors for USF at local and national events; help encourage and support community partnerships; publish academic papers on contemporary issues in research and innovation; and conduct media interviews to stimulate the national dialogue on improving our nation's innovation capacity.

IADI faculty broaden awareness of USF's local and national reputation as an innovation university by regularly attending or presenting at events such as the National Academy of Inventors annual conference, the Florida Inventors Hall of Fame annual induction ceremony, among others.



Serve as guest speaker on the topic of *Innovation and the Individual* for a virtual lecture series hosted by USF CONNECT. This business and economic development initiative at USF offers presentations by experienced executives, focused on the business aspects of technology firms for Tampa Bay technology and bio/life sciences entrepreneurs.

Featured as distinguished panelist on the topic of the future of transportation at the *Global Sustainability Conference on Sustainability & Resiliency during the Pandemic*, along with the Assistant Secretary for Strategic Development for the Florida Department of Transportation, and the Sustainability Program Manager for the Jacksonville (FL) Department of Transportation. The virtual conference, hosted by the USF Patel College of Global Sustainability, featured speakers and experts representing organizations and government offices across the state.





IADI faculty have been featured speakers for the inaugural virtual series, “In a State of Innovation and Creativity – Meet the Inventor,” hosted by The Florida House on Capitol Hill, The Cade Museum, and the Florida Inventors Hall of Fame. The Florida House on Capitol Hill serves as Florida’s embassy in Washington, DC.

Serve as invited speakers for USF public lecture series, including the “Get Innovative!” lecture series at USF Sarasota–Manatee, and other series at the College of Public Health and the Muma College of Business.



Collaborate on academic articles, such as the co-authored publication “Thoughts on Improving Innovation: What Are the Characteristics of Innovation and How Do We Cultivate Them?”, an article on the thought

processes shared by innovators, published in *Technology and Innovation: Journal of the National Academy of Inventors*. This article was a companion to the initial USF course on innovation, and continues to contribute to an important evolving conversation on the nature of creativity and innovation and the question of whether innovation is teachable.

Celebrating **10 YEARS**



LOOKING BACK
WHILE
LOOKING AHEAD ...



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