2019
Faculty Research Day
Awards Ceremony
April 17, 2019
OPENING REMARKS
Dr. Russell J. Mumper
Vice President for Research and Economic Development

WELCOME
Dr. Stuart R. Bell
President

NATIONAL ACADEMY OF INVENTORS® INDUCTEE PRESENTATIONS
Dr. Richard P. Swatloski
Director of the Office for Technology Transfer

PRESIDENT’S FACULTY RESEARCH AWARD PRESENTATIONS
Dr. John C. Higginbotham
Senior Associate Vice President for Research and Economic Development

CONCLUDING REMARKS
Dr. Russell J. Mumper
Vice President for Research and Economic Development
The National Academy of Inventors® is a member organization comprising U.S. and international universities, and governmental and non-profit research institutes, with over 4,000 individual inventor members and Fellows spanning more than 250 institutions worldwide.

The University of Alabama is proud to now have 46 members.
National Academy of Inventors® Inductees and their Patents

Dr. Fei Hu

Multi-layer Integrated Unequal Error Protection with Optimal Parameter Determination for Video Quality Granularity-Oriented Transmissions

System and Method for Wireless Frequency Usage

Systems and Methods for Detecting Unused Communication Spectrum

Active Compressive Sensing via Thermal Sensor for Human Science Recognition

Artificial Intelligence-Augmented, Ripple-Diamond-Chain Shaped Rateless Routing in Wireless Mesh Networks with Multi-Beam Directional Antennas

Dr. Younghyun (John) Kim

Systems and Methods of Dissociating Aggregate Spheres of Cells

Dr. Paul Rupar

Synthesis of Linear Polyethyleneimine by Living Anionic Polymerizations
2019 PRESIDENT’S FACULTY RESEARCH AWARD RECIPIENTS

EMERGING SCHOLARS

Physical and Biological Sciences, Mathematics and Engineering

Dr. Carla L. Atkinson
Biological Sciences

Social and Behavioral Sciences

Dr. Sara McDaniel
Special Education and Multiple Abilities
Dr. Carla L. Atkinson is an assistant professor in aquatic ecology in the Department of Biological Sciences. Dr. Atkinson's research in the field of aquatic ecology is strongly oriented towards the advancement of both basic scientific understanding as well as better conservation prioritization of biodiversity and ecosystems. Dr. Atkinson's research encompasses a broad set of long-standing questions in ecology such as the linkages between community structure and ecosystem function, food web structure and dynamics, landscape scale patterns dictating community assembly, and the importance of interactions between ecology and evolution for community and ecosystem processes. To address these questions, her lab employs a combination of observational approaches, field experiments, mesocosm, and laboratory studies. The fundamental theme linking these diverse topics in both basic and applied ecology is her deep interest in the role biodiversity plays in ecological function.

Dr. Atkinson currently has grant funding from the National Science Foundation, U.S. Fish and Wildlife Service, the Alabama Department of Conservation and Natural Resources, and the Weyerhaeuser Company. She has published over 30 peer-reviewed scientific articles in journals such as, Ecology, Oecologia, Ecosystems, and Biological Reviews. Dr. Atkinson teaches Ecology and Evolution and Freshwater Studies to undergraduate students and Foundations of Ecology for graduate students. She also developed and is teaching an undergraduate/graduate hands-on field course, Aquatic Ecosystems of the Coastal Plain, as a summer interim course this May at the Jones Ecological Research Center.

Dr. Atkinson earned a B.S. in Biology from Missouri State University, a M.S. in Ecology from the University of Georgia, and a Ph.D. in Ecology and Evolutionary Biology from the University of Oklahoma. She received post-doctoral training in the Department of Ecology and Evolutionary Biology at Cornell University. She joined the Department of Biological Sciences in 2015.
Emerging Scholar
Social and Behavioral Sciences

Dr. Sara McDaniel is an associate professor of Special Education in the Department of Special Education and Multiple Abilities and is the Director of the Alabama Positive Behavior Support Office (APBSO). The APBSO is a statewide Positive Behavioral Interventions and Support (PBIS) technical assistance center that focuses on supporting schools and districts in implementing PBIS in Alabama. Dr. McDaniel’s research has reached a large, national audience through 43 peer-reviewed publications in top-tier journals, 7 book chapters and more than 80 national and international research-based conference presentations. She has served as a keynote speaker and has given more than 20 invited conference presentations, including international conferences. She has also successfully developed a history of contract and grant funding, starting with internal grants from the College of Education and extending to external funding from the National Institutes of Health.

This research productivity has not been an individual effort. Rather, Dr. McDaniel has involved more than 10 doctoral students, ten junior faculty, and numerous colleagues at prestigious universities across the nation. Importantly, this research has had a positive impact on study participants, all of which are either placed at-risk, with disabilities, or are being served in an underserved school context. In 2017, Dr. McDaniel was awarded the Ted Carr Early Career Researcher award from the Association for Positive Behavior Support, the primary international professional organization in her field. She conducts research and teaches in the areas of: (a) secondary tier PBIS, (b) classroom management assessment and coaching, (c) PBIS for alternative education settings, and (d) early prevention for diverse populations of children placed at high-risk.

Dr. McDaniel is a proud mom of three children, Holden (8), Isla (5), and Silas (3), and wife who enjoys her family and outdoor activities.
2019 PRESIDENT’S FACULTY RESEARCH AWARD RECIPIENTS

MID-CAREER SCHOLARS

Arts and Humanities
Professor Stacy Latham Alley
Theatre and Dance

Physical and Biological Sciences, Mathematics and Engineering
Professor Zheng O’Neill
Mechanical Engineering

Social and Behavioral Sciences
Dr. Safiya George
Nursing
Professor Stacy Latham Alley is Head of Musical Theatre and an Associate Professor of Musical Theatre/Dance. She is also a professional director and choreographer whose recent teaching and/or artistic credits include work in Denmark, Tanzania, Norway, Scotland, and Chile as well as at the Virginia Samford Theatre, Forestburgh Playhouse, and SummerTide Theatre, where she is also the Artistic Director. Recent UA credits include August: Osage County, A Chorus Line, and Young Frankenstein as well as Alabama Repertory Dance Theatre concerts.

Stacy has been performing professionally for over thirty years, including five years as a featured dancer in Radio City Music Hall’s Christmas Spectacular. She is the Vice-President of the Musical Theatre Educators’ Alliance, Co-founder and former Chair of the Musical Theatre Committee for the Southeastern Theatre Conference, and a member of the Stage Directors and Choreographers Society (SDC). She holds an MFA in Acting from The University of Alabama and a BA in Theatre from the University of Southern California and is a Certified Movement Analyst through The Laban/Bartenieff Institute of Movement Studies in NYC. Stacy recently received the Outstanding Commitment to Teaching Award, presented by The University of Alabama’s National Alumni Association.
Professor Zheng O’Neill is an Associate Professor in the Department of Mechanical Engineering. She is also an Adjunct Professor of Architectural Engineering and an Assistant Director of the Alabama Industrial Assessment Center (IAC). She was a Principal Investigator at United Technologies Research Center (UTRC), East Harford, CT from 2006 to 2013. Her research at The University of Alabama has been supported by Advanced Research Projects Agency–Energy (ARPA-E), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Department of Defense (DOD), Department of Energy (DOE), National Science Foundation (NSF), and private industry. Dr. O’Neill has over 90 journal and refereed conference papers published. Her current research emphasizes intelligent building operations, uncertainty quantifications in buildings, grid-interactive efficient buildings, and smart, resilient, and connected communities and cities.

Dr. O’Neill received her Ph.D. in Mechanical Engineering from the Building and Environmental Thermal Systems Research Group at Oklahoma State University in 2004. She is a registered Professional Engineer and an active member of ASHRAE and the International Building Performance Simulation Association (IBPSA). She was a member of IBPSA–USA Board of Directors from 2011 to 2013. Currently, Dr. O’Neill is the Secretary of ASHRAE Technical Committee (TC) 7.5 Smart Building Systems and the Program Chair of TC 1.13 Optimization, and is on the Editorial Board of the Journal of Building Performance Simulation. Dr. O’Neill has received a number of awards including: the 2010 UTRC Outstanding Achievement Award, the 2013 Best Paper Award from the Journal of Building Simulation, a 2015 DOE IAC Junior Faculty Research Award, a 2016 Educator of the Year award from the ASHRAE Birmingham Chapter, a 2017 ASHRAE Innovative Research Grant Award, a 2018 IBPSA-USA Emerging Contributor Award, and a 2019 ASHRAE Distinguished Service Award.
Dr. Safiya George is an Associate Professor and Assistant Dean for Research at the Capstone College of Nursing (CCN). Under Dr. George’s leadership since 2015, CCN has seen tremendous growth in scholarly activities. In her first year at CCN, grant funding increased sevenfold from the previous year and has consistently increased. Not only has Dr. George provided exemplary leadership for faculty at CCN, she has done so by personal example with her own extensive research efforts. Her primary research area aims to promote the health and wellbeing of individuals with HIV/AIDS through evidence-based psychosocial interventions focused on social determinants of health. Her extramural applications have been especially robust, with 21 submissions. Some of her most notable awards include a grant from the Robert Wood Johnson Foundation in 2016 and most recently, in collaboration with others, grants from HRSA Remote Pregnancy Monitoring Challenge, ViiV Healthcare’s Southern Initiative Positive Action program, and the NIH-funded Resource Center for Minority Aging Research. A current study delivers a group counseling intervention via telemedicine for rural dwelling people living with HIV with comorbid depression, anxiety, and substance use issues. She has also presented her research at local, national, and international research conferences. She has approximately 50 refereed publications and book chapters. Dr. George’s research productivity demonstrates the quality as well as quantity of her work and also signals her national reputation and is extremely influential in the areas of HIV, spirituality and health.

Dr. George has received a number of honors and recognitions for her work. Her holistic approach to this research recently garnered her an international award, the Daniel J. Pesut Spirit of Renewal Award. Last year, she was elected to serve on the International Board of Directors for Sigma Theta Tau, the International Honor Society for Nursing. In addition, this past year Dr. George was inducted as a Fellow of the American Academy of Nurse Practitioners in large part due to her research contributions. Dr. George credits her success to a supportive Dean, Dr. Suzanne Prevost, an amazing Contracts and Grants Specialist, Mrs. Lauren Calhoun, and her research colleagues: Dr. Billy Kirkpatrick, Dr. George Mugoya, Dr. Pamela Payne-Foster, and Dr. Josh Eyer.
2019 PRESIDENT’S FACULTY RESEARCH AWARD RECIPIENTS

SENIOR SCHOLARS

Arts and Humanities

Dr. Paul Houghtaling
Music

Physical and Biological Sciences, Mathematics and Engineering

Dr. David A. Dixon
Chemistry and Biochemistry

Social and Behavioral Sciences

Dr. Rebecca S. Allen
Psychology
Dr. Paul Houghtaling, bass-baritone, is a professor in the School of Music. He is the winner of the 2015 Outstanding Commitment to Teaching Award, given by UA’s National Alumni Association; the 2015 Morris Lehman Mayer Award; and the 2015 Druid Arts Award for Music Educator of the Year, given by the Tuscaloosa County Arts & Humanities Council. He is the current President of the National Opera Association (NOA), the premiere support organization for academic opera programs in the United States and Canada, and holds leadership positions on the Boards of the Alabama Music Teachers Association and the Vann Vocal Institute.

In addition, Dr. Houghtaling is the founder and artistic director of the nationally recognized Druid City Opera Workshop. He has guided the UA Opera Theatre program to national prominence; the program is highly regarded for its training and curriculum emphasis and has been the recipient of numerous awards through the NOA Collegiate Opera Scenes Competition and that organization’s Opera Production Competition, in addition to being singled out by Opera America for its unique outreach initiatives. As a performer and stage director, Dr. Houghtaling has worked in a diverse repertoire throughout the U.S. and abroad. Career highlights include a highly lauded debut with the Central City Opera as the comic lead in Friml’s Rose-Marie; the Philip Glass soundtrack to Reggio’s film Naqoyqatsi for SONY, on which he is a featured vocalist; several Carnegie Hall solo appearances with Cecelia Chorus of New York, American Composers Orchestra, and others; U.S. tours with the Waverly Consort, including Kennedy Center appearances; European tours as Papageno with Teatro Lirico d’Europa; “Opera Buffa: Comedy On Stage” on Lincoln Center’s “Meet the Artists” series; and all of the major works of Bach with ensembles across the country. Recent seasons included Ko-Ko in The Mikado with Anchorage Opera, Natchez Opera, and Opera Saratoga. In 2008, he debuted with Nashville Opera as Sir Joseph in H.M.S. Pinafore and Cedar Rapids Opera Theatre as stage director for The Gondoliers. Recent seasons have included a return to Mobile Opera as stage director for The Devil and Daniel Webster, Ko-Ko with Mississippi Opera, and his debut with Opera Birmingham as Dulcamara in Lélisir d’amore. He has also appeared with the Baltimore, Boston Lyric, Knoxville, Long Beach, Opera on the James, and Santa Fe Operas, and the Metropolitan Opera Guild, among others, and has created roles in Glass’s The Witches of Venice (recorded for Euphorbia) and Lee Hoiby’s The Tempest with Des Moines Metro Opera. Dr. Houghtaling holds degrees from the College of the Holy Cross, New England Conservatory of Music, Hunter College, and the City University of New York.
Dr. David A. Dixon received a B.S. in chemistry from Caltech in 1971 and a PhD from Harvard in physical chemistry in 1976. He has been the Robert Ramsay Chair in the Department of Chemistry since 2004. The overall goal of the work in his research group is to develop computational chemistry approaches on advanced computer systems and then apply them to address a range of important national problems with a focus on energy and the environment. Important research areas include: heavy element chemistry for environmental cleanup and advanced nuclear fuel cycles, heterogeneous and homogeneous catalysis including acid gas chemistry and biomass conversion, geochemistry and mineral surfaces, biochemistry of peptides for anion-based proteomics, chemical hydrogen storage materials and fuels, and fluorine chemistry and other main group chemistry. His UA research is supported by the Department of Energy (DOE), the National Science Foundation, and the Department of Defense. He has received a number of awards including: a Harvard Junior Fellowship; a Sloan Fellowship; a Dreyfus Teacher-Scholar Award; the 1989 Leo Hendrik Baekeland Award of the American Chemical Society (ACS); a 2000 Federal Laboratory Consortium Technology Transfer Award; the 2003 ACS Award for Creative Work in Fluorine Chemistry; a 2010 DOE Hydrogen Program R&D Award; the 2011 Burnum Award from UA; the 2012 UA SEC Faculty Achievement Award; the 2015 ACS Division of Fluorine Chemistry Distinguished Service Award; and the 2018 Blackmon-Moody Award from UA. He is a Fellow of the American Association for the Advancement of Science, the American Physical Society, the ACS, and the European Academy of Sciences. He has >800 publications (>710 peer-reviewed), 3 patents + 1 pending, and a Hirsch index of 81. He has edited four volumes of Annual Reports in Computational Chemistry and is currently editing a fifth. He has 44 publications with undergraduate co-authors from UA. He has supervised ~100 undergraduate researchers at UA since arriving in 2004 and has graduated 15 PhD students with six more in his current group. He has supervised 10 postdoctoral fellows and has had 2 visiting faculty at UA. He has more than 390 invited presentations. He serves on the editorial boards of three journals. He has been the Councilor for the American Chemical Society’s Division of Fluorine Chemistry since 2013 and is currently is in his second term on the ACS Joint Board-Council Committee on Publications.

He and his wife Christine have three daughters (Michelle, Nicole, and Jessica) and four grandchildren (Trent, Cole, Levi, and Ellie). He is an Alabama football fan and enjoys sports cars and playing guitar as well as collecting original graphic art.
Dr. Rebecca S. Allen, professor in the Department of Psychology, received her Ph.D. in 1994 from Washington University in St. Louis. She is a licensed and board certified clinical geropsychologist, the only psychologist in Alabama certified in Geropsychology. Her research and clinical interests are: 1) interventions to reduce the stress of individuals, family, and professional caregivers within the context of advanced chronic or terminal illness; 2) the cultural dynamics of healthcare decision making; and 3) clinical training, particularly ethics, LGBTQ+ issues, and strategies for empowering individuals in community-based participatory research.

Dr. Allen has received funding for her research from the National Institute on Aging, the National Institute of Nursing Research, and the Patient-Centered Outcomes Research Institute. She has been an active investigator on collaborative research funded by the Department of Veterans Affairs. Dr. Allen has published on end-of-life family interventions, diversity and health disparities in advance care planning, behavioral interventions in long-term care, and mental health among aging prisoners. Dr. Allen is a Fellow of the Gerontological Society of America and the American Psychological Association, a member of the American Board of Geropsychology, and is Editor for the Americas of Aging and Mental Health. Dr. Allen teaches undergraduate statistics and lifespan development as well as graduate lifespan development, clinical psychology of aging intervention and assessment, and geropsychology practicum. Dr. Allen is a First Generation Scholar with an active behavioral science research lab that welcomes First Generation undergraduate and graduate students.
The Office for Research and Economic Development wishes to thank President Stuart R. Bell for supporting

FACULTY RESEARCH DAY

The purpose of Faculty Research Day is to showcase and celebrate excellence in research, creativity and scholarship by bringing together faculty from across our campus. The event is intended to increase awareness and generate enthusiasm for scholarship among faculty as the University advances its research enterprise and its impact.

During the event, the President’s Faculty Research Award, sponsored by our President and the Vice President for Research and Economic Development, is presented to outstanding faculty researchers from across UA Colleges and Schools. National Academy of Inventors® inductees are also recognized at the Faculty Research Day Awards Ceremony.