

OCTOBER 29, 2018

EXCELLENCE IN RESEARCH AWARDS DINNER

FISCAL YEAR 2018



PURDUE
UNIVERSITY®



SOCIAL HOUR MUSIC

Purdue String Quartet

Mariko Siewenie, violin

Ian Haggerty, violin

Natalie Scott, viola

Anna Bird, cello

EXCELLENCE IN RESEARCH AWARDS DINNER

OCTOBER 29, 2018

WELCOME

Suresh Garimella

Executive Vice President for Research and Partnerships

MORRILL AWARD

UNIVERSITY RESEARCH AWARDS

Jay Akridge

Provost and Executive Vice President
for Academic Affairs and Diversity

DINNER

SEED FOR SUCCESS AWARDS

Suresh Garimella



2018 PURDUE DISTINGUISHED

RESEARCH AWARDS

Mitchell E. Daniels, Jr.

President
and

Suresh Garimella

LU ANN ADAY AWARD

ARDEN L. BEMENT JR. AWARD

HERBERT NEWBY MCCOY AWARD



MORRILL AWARDS

MORRILL AWARD RECIPIENTS 2018

The Morrill Award recognizes those whose careers have demonstrated excellence in their teaching, research and engagement missions, as well as in demonstrating synergies among them.

Stephen R. Byrn

Charles B. Jordan Professor of Medicinal Chemistry

For advancing the field of solid state chemistry of drugs to create knowledge that can be used to predict and analyze behaviors of solids observed during the drug development process and in formulations

Larry L. Murdock

Distinguished Professor of Entomology

For his commitment to increase food availability and incomes for poor farm families, with a focus on post-harvest storage



UNIVERSITY RESEARCH AWARDS

July 2017 through June 2018

COLLEGE OF AGRICULTURE

Douglass Jacobs

Corrine Alexander Spirit of the Land-Grant Mission Award

For exceptional contributions in the area of forest regeneration and restoration that encompass and integrate the tripartite mission of discovery, engagement and teaching

Maria Sepúlveda

Purdue University Agricultural Research Award

For significant contributions to our understanding of animal responses to contaminants, diseases and other environmental stressors

COLLEGE OF EDUCATION

Yan Ping Xin

Dean's Award for Outstanding Faculty Scholarship

Recognized for continuous funding since 2005 from the National Science Foundation to further her research and create the conceptual model-based problem-solving approach, which is featured in the National Council for Teachers of Mathematics authorized book

COLLEGE OF ENGINEERING

Bryan W. Boudouris

Early Career Research Award

For his leadership and guidance in forming revolutionary paradigms in polymer science by establishing a bold and multifaceted research program at never-before-seen levels

Yung C. Shin

Research Award

For his pioneering and unrivaled efforts in the development and application of laser-based manufacturing and materials processing, leading to monumental improvements in productivity and significant reductions in costs

COLLEGE OF HEALTH AND HUMAN SCIENCES

Jeffrey Karpicke

Career Research Achievement Award

For excellence in research throughout his career

Louis Tay

Early Career Research Achievement Award

For excellence in scientific and scholarly contributions in his early years at Purdue

Patricia Thomas

Lorene Burkhart Award for Excellence in Research about Families

For outstanding research that serves to strengthen the capacity of families to provide a nurturing environment for their family members

KRANNERT SCHOOL OF MANAGEMENT

Tim Bond

Krannert Young Faculty Scholar Award

For significant scholarly accomplishment in research and future research potential

Sergey Chernenko

Jay N. Ross Young Faculty Scholar Award

For both significant scholarly accomplishment in research and future research potential

Pengyi Shi

Krannert Young Faculty Scholar Award

For significant scholarly accomplishment in research and future research potential

COLLEGE OF LIBERAL ARTS

Michele Buzon

Discovery Excellence Award for the Social Sciences

For scholarship in anthropology

Roxane Gay

Discovery Excellence Award in Creative Arts

For scholarship in English

John Larson

Discovery Excellence Award in Humanities

For scholarship in history

LIBRARIES

Nicole Kong

Libraries Annual Award for Excellence in Research

Recognized for contributions to developing best practices in data management services in academic libraries, especially as it relates to “big data”

Megan Sapp Nelson

Libraries Annual Award for Excellence in Research

For widespread acclaim of her article, “A pilot competency matrix for data management skills: A step toward the development of systematic data information literacy programs” and its supplementary files, has been in the top 5 percent of all research outputs scored by Altmetric

COLLEGE OF PHARMACY

Elizabeth M. Topp

Chaney Faculty Scholar Award

For outstanding research, scholarship and professional accomplishments in pharmacy and the pharmaceutical sciences

Qi “Tony” Zhou

Chaney Family Early Scholar Award

For the impact and potential of his research program during the first 10 years of his career

PURDUE POLYTECHNIC INSTITUTE

Alejandra Magana

Outstanding Faculty in Discovery Award

For her discovery efforts that have had significant impact in advancing knowledge in the area of cyberlearning in STEM disciplines

COLLEGE OF SCIENCE

Dor Ben-Amotz

College of Science Research Award

For innovative spectroscopic and theoretical studies of water-mediated interactions and for work developing Raman multivariate curve resolution (Raman-MCR) hydration-shell vibrational spectroscopy

Ananth Grama

College of Science Research Award

For fundamental results on long-standing open problems, such as development of the isoefficiency metric for scaling, provably optimal load balancing strategies and scalable parallel algorithms for a range of computational kernels

Rafael Lang

College of Science Research Award

For leadership in the XENON collaboration to establish the required theoretical frameworks for innovative searches, such as the demonstration that the XENON1T dark matter detector is capable of detecting a Galactic supernova in neutrinos, an entirely novel science channel

UNIVERSITY RESEARCH AWARDS *continued*

COLLEGE OF VETERINARY MEDICINE

Harm HogenEsch

College of Veterinary Medicine Excellence in Research Award

For exceptional success in conducting innovative research in immunopathology and vaccine development that has significant impact and enhances the recognition of the College of Veterinary Medicine

Robyn McCain

Outstanding Research Staff Award

For excellence in laboratory work and clinical research, her valued contributions to teaching students of all skill levels in the College of Veterinary Medicines and her collegiality and work ethic

Jean Stiles

Zoetis Award for Veterinary Research Excellence

For outstanding achievement and dedication in comparative ophthalmology and veterinary medical research

2018 SIGMA XI AWARD

Jennifer Freeman

For her work to define the genetic and epigenetic mechanisms underlying environmental stressor-induced toxicity

Stephen Konieczny

For contributions in understanding transcriptional control of cell fate decisions in normal development and disease progression in muscle and pancreatic tissue

SEED FOR SUCCESS AWARDS

The Seed for Success Award is given in recognition of the accomplishments of investigators for their efforts in obtaining an external sponsored award of \$1 million or more. The following acknowledges fiscal year 2018 single-year and multiyear award notifications.

Rakesh Agrawal, Peter A. Bermel, Sylvie M. Brouder, Nathalie Duval-Couetil, Margaret W. Gitau, Michael T. Harris, Juan P. Sesmero, Mitchell R. Tuinstra, from National Science Foundation, *NRT — INFEWS: Collaborative Research: Sustainable Food Energy and Water Systems*, \$2,510,755

Jay Akridge, Mukerrem Cakmak, Bernard Engel, Nathan W. Hartman, Ananth V. Iyer, Dimitrios Peroulis, Karen I. Plaut, Ali Shakouri, John W. Sutherland, from Lilly Endowment Inc., *Creating a Prosperous Economic Ecosystem in the Wabash Heartland*, \$19,200,000

Joerg Appenzeller, Zhihong Chen, Supriyo Datta, Mark S. Lundstrom, from National Science Foundation, *E2CDA: Type I: Probabilistic Spin Logic for Low-Energy Boolean and Non-Boolean Computing*, \$2,453,754

Elias Bareinboim, from National Science Foundation, *RI: Medium: Collaborative Research: Casual Inference: Identification, Learning and Decision-Making*, \$1,061,682

Peter Bermel, Muhammad A. Alam, Joerg Appenzeller, John E. Blendell, Zhihong Chen, Carol A. Handwerker, Mark C. Johnson, Gerhard Klimeck, Ali Shakouri, Alejandro Strachan, Ganesh Subbarayan-Shastri, Matthew A. Swabey, Peide Ye, from Indiana Innovation Institute, *Achieving Scientifically Secured User Reassurance in Electronics (ASSURE)*, \$2,292,538

SEED FOR SUCCESS AWARDS *continued*

Alexandra Boltasseva, Zubin Jacob, Vladimir M. Shalaev, from U.S. Department of Energy, *Control of Light-Matter Interaction with Epsilon-Near-Zero Homogeneous Alternative Plasmonic Material*, \$1,309,155

Charles Bouman, Gregory T. Buzzard, Stanley H. Chan, Garth J. Simpson, from National Science Foundation, *CIF: Medium: Multi-Agent Consensus Equilibrium: Modular Methods for Integrating Disparate Sources of Expertise*, \$1,216,000

Lynn Bryan, Paul A. Asunda, Siddika Guzey, Muhsin Menekse, Jill A. Newton, from National Science Foundation, *Project Einstein: Excellence in STEM Teaching in Indiana*, \$1,415,500

Mukerrem Cakmak, from Office of Naval Research, *Tracking, Diagnosing and Arresting Dielectric Breakdown Using Multiscale Characterization and Simulations*, \$1,000,000

Sarah Calve, from National Center of Complementary and Integrative Health (NIH), *Defining the Mechanical Link that Unites the Musculoskeletal System during Limb Development*, \$2,234,425

Chun-Ju Chang, from National Cancer Institute (NIH), *Targeting Metformin-Directed Stem Cell Fate in Triple Negative Breast Cancer*, \$1,770,581

Zhihong Chen, Joerg Appenzeller, Sumeet Kumar Gupta, from Semiconductor Research Corp., *NEW LIMITS — NEW materials for LogIc, Memory and InTerconnectS*, \$1,500,000

Candace Croney, Kari J. Ekenstedt, from Stanton Foundation, *Establishing a Scientific Basis for Improving Canine Welfare in Commercial Breeding Operations – Study 1: Does Risk Assessment Predict Rehoming Outcomes in Retiring CB Dogs? And Study 2: Does Maternal Fear and Stress Impact Puppy Health and Behavior?*, \$1,986,350

Chittaranjan Das, Zhao-Qing Luo, from National Institute of General Medical Sciences (NIH), *Mechanism of Atypical Ubiquitination and Deubiquitination by Bacterial Effectors*, \$1,653,244

Gebisa Ejeta, Tesfaye D. Mengiste, Patrick J. Rich, from Bill & Melinda Gates Foundation, *Integrated Striga Control II: Striga and Drought-Tolerant Sorghum (SDTS) Hybrid Seeds for Africa*, \$4,984,153

Marxa Figueiredo, from National Institute of Arthritis, Musculoskeletal and Skin Diseases (NIH), *Facilitating Endogenous Bone Repair in Arthritis with Targeted IL-27 Sonodelivery*, \$1,717,227

Timothy Filley, Jonathan Bauchet, Carrie Berger, Laura Bowling, José M Garcia Bravo, Sylvie Brouder, Gary Burniske, Christian Butzke, Indrajeet Chaubey, Keith Cherkauer, David Ebert, Gebisa Ejeta, Bernie Engel, Jane Frankenberger, Jennifer Freeman, Margaret Gitau, Javier Gonzalez, Chi-Hua Huang, Bill Hutzler, Chad Jafvert, Cliff Johnston, Nicole Kong, Linda Lee, Walter Daniel Leon-Salas, Zhao Ma, Sara McMillan, Byung-Cheol Min, Brittany Newell, Suranjan Panigrahi, Linda Prokopy, J. Ricker-Gilbert, Darrell Schulze, John Sheffield, Diane Stott, Richard Voyles, Connie Weaver, S. Laurel Weldon, Laura Zanotti, Mark Zimpfer, from Universidad Nacional de San Agustín, *Arequipa Nexus Institute for Food, Energy, Water and the Environment*, \$7,287,293

Suresh Garimella, Kaethe Beck, Thomas Verhoeven, from Eli Lilly and Co., *Five-Year Life Science Strategic Research Collaboration*, \$52,000,000

Year 1 Projects

Michael R. Ladisch, Pavlos Vlachos, Arezoo Ardekani, Julie Liu, Scott A. McLuckey, Nathan Mosier, Gintaras Reklaitis, Riyi Shi, Luis Solorio, Yoon Yeo, from Eli Lilly and Co., *Injectable Biologics*

Pedro Irazoqui, Muhammad A. Alam, Edward J. Delp, Paul Griffin, Tamara Kinzer-Ursem, Chi Hwan Lee, Hyowon Lee, Jacqueline C. Linnes, Kinam Park, Shreyas Sen, Luis Solorio, Yoon Yeo, Fengqing Zhu, from Eli Lilly and Co., *Lilly — Connected Solutions*

Humaira Gowher, from National Institute of General Medical Sciences (NIH), *Regulation of Dnmt3 Activity at Enhancers of Cell Identity Genes during Differentiation*, \$1,603,208

Nilupa Gunaratna, from Project Concern International, *Engaging Fathers for Effective Child Nutrition and Development in Tanzania (EFFECTS)*, \$1,286,095



SEED FOR SUCCESS AWARDS *continued*

John Haddock, from Indiana Department of Transportation, *Work Plan and Budget Request for Indiana Local Technical Assistance Program 2017-2018*, \$1,184,411

Tomas Höök, Jayson S. Beugly, Carolyn J. Foley, Kwamena Quagraine, Kara A. Salazar, Leslie E. Thompson, Mitchell T. Zischke, from National Oceanic and Atmospheric Administration, *2018-2022 IISG Omnibus Proposal*, \$5,431,708

Randall Hountz, Natalie Stewart, from Centers for Medicare & Medicaid Services, *Quality Payment Program Support for Small Practices*, \$1,374,970

Rong Huang, from National Institute of General Medical Sciences (NIH), *Protein N-terminal Methylation Mechanisms and Inhibition*, \$1,360,175

Avinash Kak, from Intelligence Advance Research Projects Activity, *Creation of Operationally Realistic 3D Environment (CORE3D)*, \$1,349,525

Panagiota Karava, Ilias Bilonis, James E. Braun, Leigh S. Raymond, Torsten O. Reimer, from National Science Foundation, *SCC-IRG Track 1: Sociotechnical Systems to Enable Smart and Connected Energy-Aware Residential Communities*, \$3,581,912

Andrea Kasinski, Philip S. Low, from National Cancer Institute (NIH), *Enhancing miRNA Therapeutics through Combinatorial Targeting and Vehicle Free Delivery*, \$1,757,121

Andrea Kasinski, Philip S. Low, from National Cancer Institute (NIH), *Ligand-mediated, Vehicle-free Delivery of Small RNAs*, \$1,745,389

Tae Yoon Kim, from National Institute of General Medical Sciences (NIH), *Universal Roles of Force Generation and Transmission in Biological Systems*, \$2,164,941

Gerhard Klimeck, Krishna Madhavan, Alejandro Strachan, Lynn Zentner, Michael Zentner, from National Science Foundation, *Network for Computational Nanotechnology Cyber Platform*, \$2,000,000

James Krogmeier, Aaron Ault, Larry Biehl, Dennis Buckmaster, James J. Camberato, Melba M. Crawford, Amanda J. Deering, Richard H. Grant, Haley F. Oliver, Amy R. Reibman, Dharmendra Saraswat, Mark Tucker, Mark Daniel Ward, from Foundation for Food and Agriculture Research, *An Open-Source Framework and Community for Sharing Data and Algorithms*, \$1,066,348

Michael Ladisch, Rose Prabin Ambrose, Abigail Engelberth, Kendra Erk, Marcial Gonzalez, Klein Ileleji, Nathan S. Mosier, Pankaj Sharma, Carl R. Wassgren, Eduardo A. Ximenes, from U.S. Department of Energy, *Analytical Modeling of Biomass Transport and Feeding Systems*, \$1,190,000

Tongcang Li, Francis Robicheaux, from Office of Naval Research, *Investigating Surface Interactions with Levitated Optomechanics at the Quantum Limit*, \$1,701,918

Faming Liang, from National Institute of General Medical Sciences (NIH), *An Imputation-Consistency Algorithm for Biomedical Complex Data Analysis*, \$1,164,748

Zhao-Qing Luo, Chittaranjan Das, from National Institute of Allergy and Infectious Diseases (NIH), *Effector-Mediated Ubiquitin Manipulation in Legionella Pneumophila Pathogenesis*, \$1,582,412

Angeline Lyon, from National Heart, Lung and Blood Institute (NIH), *Structural Studies of PLC β , a Regulator of Cardiac Contractility and Hypertrophy*, \$1,889,494

Rose Mason, Yukiko Maeda, Jennifer Richardson, Mandy J. Rispoli, from U.S. Department of Education, *Para-Impact: Professional Development with Teacher-as-Coach for Paraeducators of Elementary Students with Moderate-to-Severe Developmental Disabilities*, \$1,393,765

Nicolo Michelusi, James Krogmeier, David Love, from National Science Foundation, *EARS: Collaborative Research: Real-Time Control of Dense, Mobile, Millimeter Wave Networks Using a Programmable Architecture*, \$1,319,834

Patricia Morita-Mullaney, Wayne E. Wright, from U.S. Department of Education, *Leveraging the Lectura y Lenguaje: A Collaborative Scale-up of Literacy and Language in Indiana Schools*, \$1,840,319



SEED FOR SUCCESS AWARDS *continued*

Patricia Morita-Mullaney, Wayne E. Wright, from U.S. Department of Education, *Project PUEDE: Parent and Professional Understanding for Equity in Dual Language Education*, \$1,892,481

Nicholas Noinaj, from National Institute of General Medical Sciences (NIH), *Structural Characterization of the TOC Protein Translocon Machinery*, \$1,549,093

Guillermo Paniagua Perez, Terrence R. Meyer, from Indiana Economic Development Corp., *Rolls-Royce Small Turbine Aerothermal Research Rig (STARR)*, \$6,000,000

Vilas Pol, Thomas E. Adams, Partha P. Mukherjee, Pankaj Sharma, Vikas Tomar, from Office of Naval Research, *Lithium-ion Battery Safety by Prevention, Detection and Control*, \$1,956,864

David Purpura, from National Science Foundation, *CAREER: Mechanisms Underlying the Relation between Mathematical Language and Mathematical Knowledge*, \$1,444,280

Jeffrey F. Rhoads, J. Stuart Bolton, Patricia Davies, Marcial Gonzalez, Steven F. Son, from U.S. Air Force Research Laboratory, *Exploring the Thermomechanics of Energetic and Mock Energetic Composite Materials under Quasi-Static and Near-Resonant Excitations*, \$1,732,776

Jeffrey F. Rhoads, Bryan W. Boudouris, James E. Braun, George T.C. Chiu, from the U.S. Department of Energy Advanced Research Projects Agency - Energy, *Building Integrated Microscale Sensors for CO₂ Monitoring*, \$1,533,407

Fabio Ribeiro, Rakesh Agrawal, Monica E. Cardella, Nicholas W. Delgass, Otto C. Doering, Rajamani P. Gounder, Jeffrey P. Greeley, Michael T. Harris, Christina W. Li, Jeffrey T. Miller, Jeffrey J. Siirola, Arvind Varma, from National Science Foundation, *Engineering Research Center for Innovative and Strategic Transformation of Alkane Resources — CISTAR*, \$19,750,000

Toni Rogat, Anne Traynor, from National Science Foundation, *Collaborative Research: Theoretical and Methodological Tools for Studying Group Productive Disciplinary Engagement*, \$1,100,000

Kaushik Roy, Eugenio Culurciello, Suresh Jagannathan, Anand Raghunathan, from Semiconductor Research Corporation, *C-BRIC — Center for Brain-Inspired Computing Enabling Autonomous Intelligence*, \$30,090,888

Kaushik Roy, Anand Raghunathan, from Indiana Economic Development Corp., *Twenty-First Century Research and Technology Fund: Autonomous Intelligent Systems Lab*, \$1,515,000

Ala Samarapungavan, Kari L. Clase, Stephanie M. Gardner, Nancy Pelaez, Aaron D. Rogat, from National Science Foundation, *Exploring Biological Evidence (EBE): Helping Students Understand the Richness and Complexity of Evidentiary Constructs in Biology*, \$1,270,154

Susan Sangha, from National Institute of Mental Health (NIH), *Neural Circuitry of Safety, Fear and Reward Cue Discrimination*, \$1,922,965

Steven Schneider, from U.S. Air Force Office of Scientific Research, *Experimental Studies of Instability and Transition in a Mach-6 Quiet Tunnel*, \$1,740,227

Steven Schneider, Jonathan Poggie, from U.S. Air Force Research Laboratory, *Reusable Hypersonic Vehicle Structures*, \$1,423,830

William Schoenlein, Abigail C. Durkes, from Cook Research Inc., *Pre-Clinical Device Testing Agreement*, \$2,721,626

Jeffrey Siskind, from the office of the Director of National Intelligence, Intelligence Advanced Research Projects Activity (IARPA), *Deep Intermodal Video Activity (DIVA)*, \$2,349,985

Jeffrey Siskind, Evguenia A. Malaia, Ronnie B. Wilbur, from National Science Foundation, *NCS-FO: Neuroimaging to Advance Computer Vision, Neuro-Linguistic Programming and Artificial Intelligence*, \$1,000,000

Daniel Szymanski, Tae Yoon Kim, from National Science Foundation, *An Integrated Experimental and Computational Approach to Discover Biomechanical Mechanisms of Leaf Epidermal Morphogenesis*, \$1,299,989



SEED FOR SUCCESS AWARDS *continued*

John Tesmer, from National Cancer Institute (NIH), *G Protein-Coupled Receptor (GPCR) — Linked Rho Guanine Nucleotide Exchange Factors (RhoGEFs) in Tumor Growth and Metastasis*, \$1,875,849

Manghui Tu, Keyuan Jiang, from National Science Foundation, *CyberCorps®: Scholarship for Service (SFS) Program at Purdue University Northwest*, \$3,578,689

Andrea Vacca, Scott D. Sudhoff, from U.S. Department of Energy, *Individual Electro-Hydraulic Drives for Off-Road Vehicles*, \$1,500,000

Richard Voyles, Bedrich Benes, Davin Huston, Hyowon Lee, Brittany A. Newell, Karthik Ramani, Wenzhuo Wu, Haiyan Zhang, from National Science Foundation, *MRI: Development of a Next-Generation 3-D Printer for Smart Product Design — Purdue PolymerMakers*, \$1,867,017

Hong Wan, from CollinStar Capital Pty Ltd., *Blockchain Pioneer Research with Applications in Internet of Things, Artificial Intelligence and Big Data*, Amount withheld

Mary Wirth, from National Institutes of Health, *Sub-1 μ m Particles for nanoLCMS of Intact Proteins*, \$1,148,088

Dongyan Xu, Byoungyoung Lee, Mathias Payer, Xiangyu Zhang, from Office of Naval Research, *IoT-D: Toward Internets of Dialect-Speaking Things*, \$4,000,000

Gyeong Mee Yoon, from National Science Foundation, *Collaborative Research: Spatiotemporal Regulation of the Ethylene Signaling Network and Rapid Adaptive Responses in Plants*, \$1,200,028

Bryan Young, William G. Johnson, from United Soybean Board, *Research to Integrate Best Management Practices for Glyphosate-Resistant Weeds in Soybean Production Systems (FY18)*, \$1,038,186

Michael Zentner, Paul Parsons, from National Science Foundation, *The Science Gateways Community Institute (SGCI) for the Democratization and Acceleration of Science*, \$3,130,055

GuangJun Zhang, from National Institute of General Medical Sciences (NIH), *Roles of Bioelectricity of Ion Channels in Developmental Patterning and Oncogenesis*, \$1,881,070

Xiangyu Zhang, Dongyan Xu, from Office of Naval Research, *Learn-to-Reason: A Probabilistic Binary Analysis Infrastructure and its Application in Binary Reduction*, \$1,180,223

Qi (Tony) Zhou, from National Institute of Allergy and Infectious Diseases (NIH), *Combating Deadly Gram-negative Lung Infections: An Inhalation and Systems Approach*, \$3,100,053

2018 PURDUE DISTINGUISHED RESEARCH AWARDS



LU ANN ADAY AWARD

Kenneth Ferraro

*Distinguished Professor of Sociology
Director of the Center on Aging and the
Life Course in the College of Liberal Arts*

Purdue University is proud to present the Lu Ann Aday Award to Kenneth Ferraro for his innovative work and impactful contributions to the fields of sociology and gerontology.

Ferraro is considered a pioneer in evidence-based research showing that misfortunes during childhood and adolescence substantially increase the risk of disease in later life, including heart disease and cancer. He also has theorized how social stratification unfolds over the life course. His cumulative inequality theory, which he has tested empirically, describes how developmental and demographic processes stratify life chances and choices. His book, “The Gerontological Imagination: An Integrative Paradigm of Aging,” is considered the first book of its kind to identify intellectual common ground among different disciplines studying aging.

Ferraro earned his PhD in sociology at the University of Akron and joined Purdue in 1990. He is the author of 120 peer-reviewed articles on health and aging, and his research has been supported by multiple grants from the National Institute of Aging. He is the former editor of the *Journal of Gerontology: Social Science*.

HISTORY OF THE AWARD

The Lu Ann Aday Award was established in 2017 by Purdue alumna Lu Ann Aday, the Lorne D. Bain Distinguished Professor Emerita in Public Health and Medicine at the University of Texas School of Public Health-Houston.

The annual award recognizes a Purdue University faculty member who has made a major impact on his or her field in the humanities and social sciences.

Aday has served on multinational, federal and state boards, commissions and committees, such as the National Institute of Medicine, National Cancer Institute, and the Agency for Healthcare Research and Quality to advance public health access.

She earned her bachelor’s degree in agricultural economics from Texas Tech University before coming to Purdue to pursue master’s and doctoral degrees in sociology. She received an honorary doctorate of social sciences from Purdue University in 2004.



ARDEN L. BEMENT JR. AWARD

Peide “Peter” Ye

*Richard J. and Mary Jo Schwartz Professor of
Electrical and Computer Engineering*

Purdue University is proud to present the Arden L. Bement Jr. Award to Peter Ye for his field-defining work in synthesizing and applying novel electronic materials to achieve record device performance.

Ye’s work in semiconductor technologies is recognized nationally and internationally, and he has received numerous recognitions, such as the Volkswagen Fellowship, the Max Planck Society Fellowship, the NTT Fellowship, the IBM Faculty Award, the Purdue College of Engineering Faculty Award of Excellence in Research and the Sigma Xi Research Award. He is a fellow of the Institute of Electrical Engineers and the American Physical Society.

Ye received his Bachelor of Science in electrical engineering in 1988 from Fudan University, Shanghai, China. He earned his PhD in condensed matter physics in 1996 from Max Planck Institute for Solid State Research in Stuttgart, Germany. Ye came to Purdue in 2005 as an associate professor, and he now serves as the Richard J. and Mary Jo Schwartz Professor of Electrical and Computer Engineering.

HISTORY OF THE AWARD

The Arden L. Bement Jr. Award was established in 2015 by Distinguished Professor Emeritus Arden Bement and his wife, Louise Bement.

The annual award recognizes a Purdue faculty member for recent outstanding accomplishments in the pure and applied sciences and engineering.

Bement achieved international recognition as director of the National Science Foundation and director of the National Institute of Standards and Technology. He has a long and distinguished career with Purdue, having served as the Basil S. Turner Distinguished Professor of Electroceramics, the David A. Ross Distinguished Professor of Nuclear Engineering and the Chief Global Affairs Officer for the Global Policy Research Institute.

Bement received his doctoral degree in metallurgical engineering from the University of Michigan. He has been commended with seven honorary degrees in science and engineering from universities in the U.S. and abroad. He is a member of the National Academy of Engineering and a fellow in the American Academy of Arts and Sciences.



HERBERT NEWBY MCCOY AWARD

Natalia Dudareva

*Distinguished Professor of Biochemistry
Distinguished Professor of Horticulture
and Landscape Architecture*

Purdue University is proud to present the Herbert Newby McCoy Award to Natalie Dudareva for her pioneering contributions to plant biotechnology.

Her work in molecular mechanisms of plant metabolism has provided insights into fundamental plant biology. She has pioneered research into the biosynthetic pathways that underpin plants’ strategies for attracting pollinators; communicating with other plants; and defending themselves from pathogens, parasites and herbivores. She has received recognition for her research as a Purdue Faculty Scholar and the Wickersham Chair of Excellence in Agricultural Research. She was awarded the Purdue University Agricultural Research Award, the Sigma Xi Research Award and the Alexander von Humboldt Research Award (Germany). Dudareva is a fellow of the American Association for the Advancement of Science.

Dudareva earned her bachelor’s and master’s degrees in biochemistry from Novosibirsk State University in Russia before receiving a PhD in biochemistry and molecular biology from the O.V. Palladin Institute of Biochemistry in Kiev, Ukraine. She received a second PhD in plant molecular biology from the Louis Pasteur University, Strasbourg, France.

HISTORY OF THE AWARD

The Herbert Newby McCoy Award was established in 1964 by Ethel Terry McCoy in honor of her husband, a distinguished Purdue University alumnus.

The annual award recognizes a Purdue faculty member or student who has made the greatest contribution of the year to the natural sciences.

A native of Richmond, Indiana, Herbert Newby McCoy studied chemistry at Purdue, earning a BS degree in 1892 and an MS degree in 1893. He received his PhD from the University of Chicago in 1898.

McCoy spent the early part of his career as a professor of chemistry, teaching at Fargo College, the University of Utah and the University of Chicago. He was awarded the Willard Gibbs Medal in 1937 for his contributions to the field of chemistry. During the latter part of his career, he was president of Carnotite Reduction Co. in Chicago and vice president of Lindsay Light and Chemical Co., also in Chicago.

McCoy Award Winners

2017 JEAN A. CHMIELEWSKI

Chemistry
For impact on the fields of chemical biology and drug discovery

2016 JIAN-KANG ZHU

Horticulture and Landscape Architecture, and Biochemistry
For groundbreaking contributions to our understanding of the mechanisms and role of epigenetics in stress biology

2015 ARUN K. GHOSH

Chemistry and Medicinal Chemistry
For contributions in broad areas of organic, bioorganic and medicinal chemistry, and his extensive work in the field of structure-based molecular design

2014 H.J. MELOSH

Earth, Atmospheric, and Planetary Sciences
For pioneering work on the subject of meteorite impact cratering, planetary tectonics, and the physics of earthquakes and landslides

2013 ANDREW M. WEINER

Electrical and Computer Engineering
For advancements in the programmable generation of arbitrary ultrashort pulse waveforms, which has found application both in fiber-optic networks and in ultrafast optical science laboratories around the world

2012 CONNIE M. WEAVER

Nutrition Science
For defining the factors in food that influence calcium bioavailability and for work on calcium metabolism in adolescents and the impact of race on calcium utilization

2011 CLINT C. CHAPPLE

Biochemistry
Worldwide recognition as a trailblazer in the mapping of the metabolic pathways that drive plant biomass production as a result of his innovative and prolific research program

2010 DAVID E. SALT

Horticulture and Landscape Architecture
Pioneering and innovative efforts in the use of genome-scale biological approaches and information technologies to define and drive the field of ionomics

2009 VLADIMIR M. SHALAEV

Electrical and Computer Engineering and Biomedical Engineering
Seminal contributions to both the theoretical framework and experimental realization of optical metamaterials with strong magnetic response and negative refractive index at optical frequencies

2008 RICHARD J. KUHN

Biological Sciences
Contributions to the molecular and structural understanding of the viral infection process

2008 SCOTT A. MCLUCKEY

Chemistry
Development of ion/ion reactions that greatly simplify and extend the use of mass spectrometry in proteomics

2007 JOSEPH S. FRANCISCO

Earth and Atmospheric Sciences and Chemistry
Contributions to the application of new tools from theoretical and experimental physical chemistry to atmospheric chemical problems to bring about an understanding of the various chemical processes in the atmosphere at a molecular level

2006 SUPRIYO DATTA

Electrical and Computer Engineering
Contributions to the theory of quantum transport in nanoscale electronic devices and molecular electronics

2005 DAVID D. NOLTE

Physics
Pioneering contributions in the field of photorefractive effects in semiconductors and their heterostructures that have led to the development of the most sensitive dynamic holographic recording materials documented to date

2004 STANTON B. GELVIN

Biological Sciences
Outstanding achievements regarding the biology of DNA transfer from the soil bacterium *Agrobacterium tumefaciens* to plant genomes

2003 PHILIP L. FUCHS

Chemistry
Outstanding achievements in the field of synthetic organic chemistry

2002 ROBERTO COLELLA

Physics
Outstanding achievements in structural, electronic and vibrational properties of condensed matter, exploiting X-ray, electron and neutron diffraction techniques

2002 ALEXANDRE EREMENKO

Mathematics
Contributions in geometric function theory

2001 JANET L. SMITH

Biological Sciences
Outstanding achievements in the field of protein X-ray crystallography and its application to elucidate the structure and function of enzymes

2000 NICHOLAS A. PEPPAS

Chemical Engineering and Biomedical Engineering
Many research contributions in mass transfer, kinetics and reaction engineering, polymers, biomedical engineering, biomaterials, pharmaceutical engineering and drug delivery

1999 RAY A. BRESSAN

Horticulture
Many research accomplishments relating to disease resistance in plants

1998 EI-ICHI NEGISHI

Chemistry
Significant research contributions toward the development of new metallic catalysts with broad application in synthetic organic chemistry

1997 GREGORY B. MARTIN

Agronomy
Landmark contributions toward understanding the molecular genetic basis of disease resistance in plants

1996 TIMOTHY S. BAKER

Biological Sciences
Contributions to the field of structural virology

1996 BEN S. FREISER

Chemistry
Contributions to gas-phase metal ion chemistry and Fourier transform ion cyclotron resonance mass spectrometry

1995 JOHN H. CUSHMAN

Agronomy and Mathematics
Contributions toward the fundamentals of the physics of fluids in porous media

1994 ANANT K. RAMDAS

Physics
Contributions, along with Professor Sergio Rodriguez, toward the fundamentals of the electrical properties of semiconductors

1994 SERGIO RODRIGUEZ

Physics
Contributions, along with Professor Anant K. Ramdas, toward the fundamentals of the electrical properties of semiconductors

1993 PHILIP S. LOW

Chemistry
Contributions in folate-assisted transfer of macromolecules into living cells

1992 NICHOLAS J. GIORDANO

Physics
Contributions in understanding the behavior of mesoscopic systems

1991 WILLIAM J. RAY JR.

Biological Sciences
Contributions to modern enzymology

1990 R. GRAHAM COOKS

Chemistry
Contributions in fundamentals, instrumentation and applications of mass spectrometry

1989 THOMAS K. HODGES

Botany and Plant Pathology
Contributions in transferring recombinant genetic information into plants

1988 WILLIAM A. CRAMER

Biological Sciences
Contributions to understanding the relation between structure and function in biological membranes

1987 C. AUSTEN ANGELL

Chemistry
Contributions to the fundamental chemistry of glassy substances

1986 STANLEY A. BARBER

Agronomy
Contributions to soil chemistry and plant nutrition

1985 LOUIS de BRANGES

Mathematics
Contributions in the field of functional analysis

1984 ROLF P. SCHARENBERG

Physics
Combined contributions, with Professor Lazlo J. Gutay, in the fields of nuclear and particle physics

1984 LASZLO J. GUTAY

Physics
Combined contributions, with Professor Rolf P. Scharenberg, in the fields of nuclear and particle physics

1983 DALE W. MARGERUM

Chemistry
Contributions to our knowledge of the kinetics and mechanisms of metal ion interactions

1982 WILLIAM L. PAK

Biological Sciences
Pioneered use of a unique combination of genetics, physiology and biochemistry to analyze mechanisms of a visual photoreceptor — a sensor that transforms light into electrical signals

1981 HEINZ G. FLOSS

Medicinal Chemistry
Contributions to the biochemistry of natural products

1980 PHILIP F. LOW

Agronomy
Contributions to the understanding of the nature and properties of water on mineral surfaces

1979 LEONARD E. MORTENSON

Biological Sciences
Outstanding authority in the area of the biochemistry of nitrogen fixation

1978 ALBERT W. OVERHAUSER

Physics
Significant achievements in solid state physics

1977 R. STUART TOBIAS

Chemistry
Contributions to the field of organometallic chemistry and achievements in developing Raman methods and their application to problems of inorganic biochemistry

1976 KING-SUN FU

Electrical Engineering
Contributions to the area of pattern recognition and his pioneering work in applying these techniques to the medical sciences

1975 MICHAEL LASKOWSKI JR.

Chemistry
Contributions to the world of chemistry

1974 MICHAEL G. ROSSMANN

Biological Sciences
Significant accomplishments in molecular biology, and, in turn, bringing great credit to Purdue University

1973 SHREERAM S. ABHYANKAR

Mathematics
National and international standing in the area of algebraic geometry

1972 ROBERT A. BENKESER

Chemistry
Contributions to the world of chemistry

1972 HUBERT M. JAMES

Physics
Contributions to the world of physics

1971 JOHN B. BANCROFT

Botany and Plant Pathology
Bringing about a better understanding of the structural organization of viruses and their self-replicating functions

1970 H. EDWIN UMBARGER

Biological Sciences
International recognition as a distinguished biologist

1969 HSU Y. FAN

Physics
Achievements in solid state physics

1968 HARRY BEEVERS

Biological Sciences
Contributions in plant physiology

1967 EDWIN T. MERTZ

Biochemistry
Combined research discovery, with Professor Oliver E. Nelson Jr., of the genetic regulation of the lysine composition of corn

1967 OLIVER E. NELSON JR.

Botany and Plant Pathology
Combined research discovery, with Professor Edwin T. Mertz, of the genetic regulation of the lysine composition of corn

1966 HERBERT C. BROWN

Chemistry
Contributions to the world of chemistry

1965 SEYMOUR BENZER

Biophysics
Contributions in molecular biology and genetics

Bement Award Winners

2017 MIKHAIL J. ATALLAH

Computer Science
For significant contributions in the design and implementation of efficient processing and security technologies

2016 ARVIND VARMA

Chemical Engineering
For pioneering contributions to the discipline of chemical-reaction engineering

2015 WOJCIECH SZPANKOWSKI

Computer Science
For development of innovative analytic methods for the Shannon information theory, leading to solutions for open problems in analytical information

Aday Award Winners

2017 MICHELE R. BUZON

Anthropology
For pioneering work in bioarchaeology

Research and Scholarship Distinction Award Winners 2013-2015

The establishment of the Lu Ann Aday Award in 2017 replaced the Research and Scholarship Distinction Award.

2015 RONNIE WILBUR

Speech, Language, and Hearing Sciences
For pioneering research in the area of sign language and linguistics

2014 MARIANNE BORUCH

English
For contributions to American poetry and for advancing poetry as an artistic, philosophical and spiritual force

2013 THOMAS W. HERTEL

Agricultural Economics
For unique contributions to the quantitative analysis of global economic and environmental conditions

150 YEARS OF GIANT LEAPS™

From its beginning 150 years ago as a land-grant institution, one of the key missions and hallmarks of Purdue University has been world-class research. The world has made giant leaps forward in every field of endeavor — aeronautics to agriculture, engineering to education, business to athletics, and technology to the human sciences — thanks to work done at Purdue.

Over the next year, Purdue alumni, faculty and industry leaders will honor our history of innovation and discuss how we can solve today's global challenges by empowering our collegial and global community to make leaps, building on Purdue's legacy.

After the sesquicentennial celebration ends, Purdue will continue to encourage future giant leaps, work on the world's most pressing problems and leave positive, life-changing footprints from West Lafayette to outer space.



*The Excellence in Research Awards Dinner hosted by the
Office of the Executive Vice President for Research and Partnerships*