

Sigma Xi Distinguished Lecturers 2022–2023

For the 85th year, Sigma Xi presents its panel of Distinguished Lecturers as an opportunity for chapters to host visits from outstanding individuals who are at the leading edge of science. These visitors communicate their insights and excitement on a broad range of topics.

The Distinguished Lecturers are available from July 1, 2023, to June 30, 2024. Each speaker has consented to a modest honorarium together with full payment of travel costs and subsistence.

Local chapters may apply for subsidies to support expenses related to hosting a Distinguished Lecturer. Ap-

plications must be submitted online by March 1, 2023, for funds to be available the next fiscal year.

Additional support for the program comes from the American Meteorological Society. Lecturer biographies, contact information, and additional details can be found online at sigmaxi.org/lectureships or by sending an email to lectureships@sigmaxi.org.

Marc Imhoff, Chair
Committee on Lectureships



Charles I. Abramson, Regents Professor, Oklahoma State University

A Study in Inspiration: The Story of the Neglected African American Scientist Charles Henry Turner (1867–1923) (P, G) • *Psychology Gone Astray: The Racist and Sexist Literature of Early Psychology (P, G)* • *The Unappreciated Role of Behaviorism in the Interpretation of Psychological Problems of Society in the Context of an Epidemiological Threat (P, G)*



Richard Alley (American Meteorological Society), Evan Pugh University Professor of Geosciences, Pennsylvania State University

Finding the Good News on Climate and Energy (P, G) • *Collapsing Cliffs? Ice Sheets and Sea Level (P, G, S)* • *Telling the Good News, Too: Communicating about Energy and Environment (P, G, S)*



David Allison, Dean, Distinguished Professor, and Provost Professor, Indiana University School of Public Health–Bloomington

The Myriad Contributors to Obesity: Exploring the Roads Less Traveled (P) • *Errors in Scientific Research: Prevent, Detect, Admit, Correct (G)* • *Living Large: The Effects of Obesity, Body Fat, Food Intake, and Changes Therein on Aging and Longevity (P)*



Steven Austad, Distinguished Professor, Protective Life Endowed Chair in Healthy Aging Research, University of Alabama at Birmingham

The 150-Year-Old Human: How Soon? How Desirable? (P, G) • *Methuselah's Zoo: What Nature Can Teach Us about Living Longer, Healthier Lives (P, G)* • *Adam's Curse: Why Women Live Longer Than Men (P, G)*



David A. Bader, Distinguished Professor and Director of the Institute for Data Science, New Jersey Institute of Technology

Solving Global Grand Challenges with High Performance Data Analytics (P, G, S) • *Predictive Analysis from Massive Knowledge Graphs (P, G, S)* • *Interactive Data Science at Scale (P, G, S)*



Supriyo Bandyopadhyay, Commonwealth Professor of Electrical and Computer Engineering, Virginia Commonwealth University

Energy-Efficient Information Processing in Our Energy-Hungry World (P, G, S) • *Tiny Nanomagnets Can Compute with Minimal Energy Cost (G, S)* • *Straintronics: Information Processing and Unconventional Computing with Multiferroic Nanomagnets (G, S)*



Brad N. Barlow, Associate Professor of Astrophysics, Director of the Culp Planetarium, High Point University

Music of the Spheres: Pulsating Stars as Instruments in a Galactic Orchestra (P, G) • *Finding Type 1a Supernova Progenitors with NASA's TESS Spacecraft (P, G, S)* • *Determining the Influence of Substellar Objects on Stellar Evolution (P, G, S)*



Marcia Bartusiak, Professor of the Practice Emeritus, Massachusetts Institute of Technology

Edwin Hubble Discovers the Modern Universe, 1923–24: A Centennial Celebration (P, G) • *The Biography of a Black Hole: How an Idea Once Hated by Physicists Came to Be Loved (P, G)* • *Master of the Universe: How Einstein's Theories Overturned Our View of the Cosmos (P, G)*

P (Public), G (General), S (Specialized)

Details available at sigmaxi.org/lectureships



Nikhilesh Chawla, Ransburg Professor of Materials Engineering, Purdue University

Bioinspired Materials: Learning from Nature to Engineer New Materials (P, G) • *4D Materials Science: Probing Microstructural Evolution of Materials in Real Time (P, G, S)* • *Engineering Disasters: Learning from Failure (P, G)*



Mukund Chorghade, Founder, President and Chief Scientific Officer, THINQ Pharmaceuticals

The Wit and Humor of Scientists (P, G) • *Science Entrepreneurship: A Personal Perspective (P, G)* • *Drug Discovery and Development: An Insider's Perspective (G, S)*



Lynn Cominsky, Professor, Physics and Astronomy Director, EdEon STEM Learning, Sonoma State University

Gravitational Waves: The Discovery That Won the 2017 Nobel Prize (P, G) • *High Energy Visions of the Universe (P, G)* • *Science of War and Peace (P, G)*



Peer Fischer, Professor, Max Planck Institute for Intelligent Systems and University of Stuttgart, Germany

How Do Bacteria Swim and How Can This Inspire Nanorobotics? (P, G) • *Holograms, Actuation and 3D Fabrication with Ultrasound (G, S)*



James Hamilton, Professor, University of Wisconsin-Platteville

The Little Dirty Secret That Kept NASA from Seeing Stars and Planets Clearly: An Unlikely Chemical Journey from the Lab to the Marketplace through the Hope Diamond to Massive Space Telescopes (P, G) • *Using Polymers and Metrology in Chemistry and Physics to Clean the Uncleanable, Enable Gravitational Wave Detection, Extend Terrestrial Telescope Lifetimes, and Solve Other Vexing Problems (G, S)* • *A Journey from the Lab to the Marketplace: From Nanotechnology to Dark Matter and Energy, from Planetary Protection to Technology to View Uncharted Worlds and Stars with NASA (P, G, S)*



Reyco Henning, Professor, University of North Carolina at Chapel Hill and Triangle Universities Nuclear Laboratory

Quest for the Nature of the Neutrino (G, S) • *Searching for the Rarest Events in the Universe (P, G)* • *Taming the Dark Matter Zoo Without Telescopes (P, G, S)*



John R. Jungck, Professor of Biological Sciences and Mathematical Sciences, Inaugural Fellow Honors College, Associate Director, Institute for Transforming University Education, Delaware Environmental Institute; Computational Biology and Bioinformatics, Delaware Biotechnology Institute

Mathematics Saves Lives! (G) • *Citizen University (G)* • *Biomimetic Design Principles of Self-Assembling, Self-Folding, and Origami (G)*



Akhlesh Lakhtakia, Evan Pugh University Professor and Charles Godfrey Binder Professor of Engineering Science and Mechanics, The Pennsylvania State University

What Can Engineering Scientists Do to Combat the Climate Emergency? (P, G) • *Biologically Inspired Design for the Environment (P, G)* • *Optoelectronic Optimization of Thin-Film Solar Cells with Graded-Bandgap Semiconductor Layers (G, S)*



Dante Lauretta, Regents Professor of Planetary Science and Cosmochemistry, University of Arizona

Life in the Cosmos: The Search for Biology in the Universe (P) • *OSIRIS-REx: NASA's Sample Return Mission from Asteroid Bennu (G)* • *Journeys on the Asteroid Frontier: The Engineering Behind NASA's OSIRIS-REx Asteroid Sample Return Mission (S)*



Steven Richardson, Professor Emeritus of Electrical and Computer Engineering, Howard University

Using Supercomputers to Design and Understand Novel Molecules and Materials (P) • *An Introduction to Quantum Computing (G)* • *Using Impurity-Vacancy Color Centers as Single Photon Emitters in Diamond (S)*

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Anne Savage, Founder and Executive Director of Proyecto Tití, Co-founder of Fundación Proyecto Tití, Santa Catalina at Hacienda El Ceibal Colombia

Proyecto Tití: Saving Colombia's Critically Endangered Cotton-top Tamarin (P, G) • Teens, Tamarins, and Teamwork: Successful Efforts to Engage Communities in Conserving Cotton-top Tamarins in Colombia (P, G) • Cotton-top Tamarins: Studies in Captive Care Have Informed Conservation Actions (P, G)



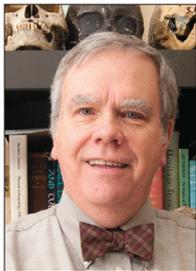
Michael S. Shur, Patricia W. and C. Sheldon Roberts Professor, Rensselaer Polytechnic Institute

Industrial Face of Nanotechnology (P, G, S) • Beyond Sunlight: Smart Light Emitting Diode Lighting (P, G, S) • Ultraviolet Light Emitting Diodes Saving Lives (P, G, S)



Ramteen Sioshansi, Professor, Department of Integrated Systems Engineering, Department of Electrical and Computer Engineering; Director, EmPOWERment National Science Foundation Research Traineeship Program, The Ohio State University

Technology Pathways to and Economic and Technical Challenges with Decarbonizing Electricity Systems (P, G, S) • How Regulatory Choices Impact the Sustainability, Reliability, and Resilience of Energy Supply (P, G, S)



Fred H. Smith, University Professor of Anthropology and Biological Sciences Emeritus, Illinois State University

Visiting the Ancestors: Archaic Africans, Neandertals, and the Beginnings of People Like Us (P, G, S) • A Night Out with the Neandertals (P, G) • The Perplexing Case of the Vindija Neandertals (G, S)



Jeffrey Toney, Senior Vice President for Research, Kean University

The Undervalued Currency of Culture in Higher Education (P) • Science and Human Rights (G) • The Pandemic of Confusion (P)



George Veni, Executive Director, National Cave and Karst Research Institute

The World Below: An Introduction to Caves and Karst (P, G) • Sinkholes: Where They Occur, How They Form, and How to Minimize Their Impacts (P, G, S) • The Sunless Seas of Karst Aquifers (P, G, S)



Jut Wynne, Assistant Research Professor, Northern Arizona University

Addressing Knowledge Shortfalls in Subterranean Biology (P, G, S) • Evolutionary Dynamics of Subterranean-Adapted Fauna (P, G, S) • Science and Technology Requirements to Explore Caves Beyond Earth (P, G, S)



Enrico Zio, Professor, MINES ParisTech, PSL Research University, CRC, Sophia Antipolis, France, and Energy Department, Politecnico di Milano, Italy

Risk-Informed Decision-Making for Building a Society Resilient to Global Risks like the COVID-19 Pandemic (P, G, S) • The Future of Risk Assessment (S) • Machine Learning in Data-Driven Prognostics and Health Management (PHM) for Condition-Based and Predictive Maintenance (S)

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Chapter Subsidy Application Deadline:

March 1, 2023

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