Announcing Finalists of 2016 Blavatnik National Awards for Young Scientists

NEW YORK - June 1, 2016 - The Blavatnik National Awards for Young Scientists announced today the 31 National Finalists who will be competing for three spots as the 2016 Blavatnik National Laureates. The Finalists were selected from 308 nominations of outstanding faculty-rank researchers from 148 of the nation's leading academic and research institutions.

The full list of 2016 National Finalists can be found below and online here.

The annual Blavatnik Awards, established by the Blavatnik Family Foundation in 2007 and administered by the New York Academy of Sciences, celebrate exceptional young researchers who drive the next generation of scientific innovation by answering the most complex scientific questions of today. The three National Laureates will be announced in June 2016 and will each receive an unrestricted cash prize of $250,000, the largest prize of its kind for early-career scientists.

2016 Disciplinary Trends

This year's Life Sciences Finalists are addressing difficult scientific questions with transformative insight, innovative strategies, and revolutionary technologies. Their work includes uncovering unexpected cellular and molecular mechanisms responsible for gene regulation and editing, and epigenetic phenomena; making breakthroughs in the understanding and management of infectious diseases, including HIV, Ebola virus, and Lassa fever; studying the human microbiome and microbial communities; and exploring the history of life on earth to reveal how species and populations have evolved.

The 2016 National Finalists in Physical Sciences & Engineering are helping to solve the mysteries of the universe and creating breakthrough technologies. Their achievements include advancing our understanding of fundamental physics; searching for planets and habitable worlds beyond the solar system and exploring the formation of galaxies; creating transformative imaging technology and algorithms to visualize objects as small as molecules and viruses; engineering materials with unprecedented properties, and designing a new generation of energy storage devices.

The 2016 National Finalists in Chemistry are performing revolutionary research that has the potential to improve lives around the globe. Their efforts include the development of novel synthetic methodology and RNA-based drug discovery; creating novel microscopy techniques and applying the technology to the design of solar cells and analysis of biological systems; developing more accurate computational models of chemical reactivity; tuning and scaling hard and soft nanostructures and investigating their materials-dependent properties; and elucidating the molecular mechanisms by which microbiota can influence their host.

The National Laureates and Finalists will be honored at an annual awards ceremony on Monday, September 12, 2016, at the American Museum of Natural History in New York City.

In addition, on July 18-19, 2016, the Academy and the Blavatnik Family Foundation will host the third annual Blavatnik Science Symposium featuring research of the 2016 National Finalists and Blavatnik Awards honorees from previous years. The event will also include members of the Blavatnik Awards National Jury and Scientific Advisory Council, as well as other scientific luminaries.
Meet the 2016 Blavatnik National Finalists

2016 Life Sciences Finalists

- Xin Chen (Johns Hopkins University): Dr. Chen is a developmental biologist working on some of the deepest questions about stem cells and their asymmetric division. She examines how epigenetic information is inherited using cutting-edge super resolution microscopy to visualize old and new histones during DNA replication.

- Casey Dunn (Brown University): Dr. Dunn's work in evolutionary biology explores the history of life on earth. His studies of the morphology and evolution of marine animals have challenged existing paradigms by being the first to show that comb jellyfish, not sponges, are the common ancestor or sister group to all animals.

- Antonio Giraldez (Yale University): Dr. Giraldez's research in developmental biology seeks to understand how cells decode the language of life. He focuses on the mechanisms and regulation of microRNAs during early embryonic development.

- Rob Knight (University of California, San Diego): Dr. Knight studies the human and environmental microbiome. He has pioneered the fields of comparative microbial genomics and metagenomics and developed bioinformatic tools to improve our understanding of microbial communities around the world.

- Oliver Rando (University of Massachusetts Medical School): A physician scientist, Dr. Rando focuses on genetics and genomics, specifically studying paternal transgenerational effects in yeast and mice. His research asks questions about how a father's diet ("Daddy effects") may influence the metabolism of his children.

- Michael Rape (University of California, Berkeley): Dr. Rape studies ubiquitin-mediated cell division and differentiation. He has made numerous fundamental discoveries related to the enzymes, substrates, processes, and regulation of the cell cycle influenced by ubiquitin-mediated proteolysis.

- Antonina Roll-Mecak (National Institutes of Health): Dr. Roll-Mecak investigates the organization and movement of cells, focusing on cytoskeletal regulation and microtubules. She employs a unique approach combining biophysics, single molecule fluorescence, and structural and cell biology to crack the "tubulin code."

- Pardis Sabeti (Harvard University): Dr. Sabeti is a systems biologist and physician scientist studying infectious disease evolution. Her research utilizes computational genetics to develop clinical diagnostic methods for responding to deadly disease outbreaks, including the Ebola virus and Lassa fever.

- Beth Shapiro (University of California, Santa Cruz): Dr. Shapiro studies "ancient DNA," or paleogenomics to understand how changing selective pressures have affected species distributions and survival. Her work has reshaped evolutionary history and provided key insights on extinction and conservation practices for animals such as mammoths, bison, camel, brown and polar bears.
• Leor Weinberger (Gladstone Institutes): Dr. Weinberger is a physicist-turned-immunologist studying gene expression in HIV and human herpes viruses. He has demonstrated the role of stochastic noise and signals in influencing cell fate decisions and discovered therapeutic targets for antiviral therapies.

• Feng Zhang (Massachusetts Institute of Technology): Dr. Zhang has played critical roles in the development of revolutionary technologies including optogenetics and genome editing using the CRISPR system.

2016 Physical Sciences & Engineering Finalists

• Andrea Alù (The University of Texas, Austin): Dr. Alù has made seminal contributions to the theory and design of metamaterials, including pioneering work on "invisibility cloaks" for making objects undetectable to radio waves or light, and theoretical studies of nanocircuits and nanoantennas.

• Alexei Borodin (Massachusetts Institute of Technology): Dr. Borodin is a mathematician who has made influential interdisciplinary contributions ranging from probability theory to mathematical physics. He has authored important work on integrable probabilistic models, which describe a variety of real world phenomena.

• David Charbonneau (Harvard University): Dr. Charbonneau made the first detections of a transiting exoplanet, exoplanet atmosphere, and light emitted from an exoplanet. He also pioneered numerous methods to discover and characterize exoplanets that have become standards in the field.

• Yi Cui (Stanford University): Dr. Cui has pioneered the use of nanomaterials for energy storage devices and created numerous breakthrough materials-based solutions for high-performance batteries and battery electrodes, including nanostructured silicon anodes and stable lithium metal anodes.

• Jenny Greene (Princeton University): Dr. Greene is an astrophysicist who has made important contributions to the observational studies of black holes, their lifecycles, and their role in galaxy evolution. She has made several discoveries of relationships between the properties of black holes and their host galaxies.

• Julia Greer (California Institute of Technology): Dr. Greer has transformed the study of metamaterials by designing new methods to engineer 3D hierarchical nanolattices with remarkable mechanical, thermal, and optical properties.

• Sergei Kalinin (Oak Ridge National Laboratory): Dr. Kalinin is a leader in scanning probe microscopy (SPM) for studying functionality of nanomaterials. He has developed unique SPM methods for characterizing nanoscale behavior of ferroelectric and multiferroic materials.

• Aydogan Ozcan (University of California, Los Angeles): Dr. Ozcan has created photonics-based telemedicine technologies and built lens-free imaging devices for point-of-care diagnostics, sensing, and testing that may be integrated with cell phones.
• Amit Singer (Princeton University): Dr. Singer has created methods for data analysis and optimization that have had a profound impact on empirical science methodology, digital data organization, and knowledge extraction used in medical diagnostics, hyperspectral imaging, and equipment monitoring.

• Anastasia Volovich (Brown University): Dr. Volovich is a theoretical physicist working at the forefront of quantum field theory and gravity. She has authored influential studies of scattering amplitudes in 4D gauge theories, supergravity, and string theory, with applications ranging from fundamental theory to physics at particle colliders.

2016 Chemistry Finalists

• Phil Baran (The Scripps Research Institute): Dr. Baran is transforming what was thought to be a mature field of natural product synthesis. He designs efficient, commercially-scalable syntheses of biologically active natural products and, in the process, developing new reagents and reactions.

• Garnet Chan (Princeton University): Dr. Chan's major discovery is the reformulation of DMRG method, which enables computational chemists to accurately model the electronic structure of complex molecules. This method shortens the time needed for certain simulations to complete from decades to months.

• Matthew Disney (The Scripps Research Institute): Dr. Disney is focusing his research on RNA-based drug discovery. His work centers on developing general, rational approaches to design precision medicines from genome sequences by targeting the RNA product of genes.

• Pieter Dorrestein (University of California, San Diego): Dr. Dorrestein, a chemical biologist, is the primary architect of the Global Natural Products Social Molecular Network, an algorithm that automatically deduces the relationship between natural products based on their fragmentation patterns.

• Michael Fischbach (University of California, San Francisco): Dr. Fischbach's research is on the human microbiome, focusing on the molecular mechanisms by which the microbiota influence the host organism. He developed an algorithm that identifies the biosynthetic genes in bacterial genomes and has applied this to the human microbiome.

• David Ginger (University of Washington): Dr. Ginger works to develop and apply new methods of microscopy to probe heterogeneous chemical systems in nanostructured polymers and solar cells. He has developed technology that allows images to be rendered from humongous data sets in real time (earlier methods require at least four hours).

• Bo Huang (University of California, San Francisco): Dr. Huang, a chemical biologist, has successfully repurposed CRISPR-Cas9 as a tool for visualizing the chromosomes in living cells. In addition, he developed and applied super-resolution microscopy to the study of various biological systems.

• Nevan Krogan (Gladstone Institutes): Dr. Krogan uses biochemistry and structural biology to generate large-scale quantitative genetic and physical interaction maps in several organisms. The maps are used to formulate hypotheses about various biological processes.
• Teri Odom (Northwestern University): Dr. Odom focuses on physical chemistry and has developed powerful new methods of nanofabrication on a multi-scale level. These tools focus on multi-scale, anisotropic, and 3D plasmonic materials for applications in imaging, sensing, and cancer therapeutics.

• Edward Valeev (Virginia Polytechnic Institute and State University): Dr. Valeev does research in theoretical chemistry and is a pioneer in the development of accurate, many-body electronic structure methods for molecular simulations. The main focus of his work is on the development of mathematical and numerical models and their implementation in computer programs.

To follow the progress of the Blavatnik Awards, please visit the Awards website (http://blavatnikawards.org), or follow us on Facebook and Twitter (@BlavatnikAwards). For media requests, please contact Marina Blinova (mblinova@nyas.org; 212-298-8626).

About The Blavatnik Family Foundation

The Blavatnik Family Foundation is an active supporter of leading educational, scientific, cultural, and charitable institutions in the United States, Europe, and throughout the world. The Foundation is headed by Len Blavatnik, an American industrialist and philanthropist. Mr. Blavatnik is the founder and Chairman of Access Industries, a privately-held U.S. industrial group with global interests in natural resources and chemicals, media and telecommunications, technology and e-commerce, life sciences, and real estate. For more detailed information, please visit: www.accessindustries.com

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