2020 Blavatnik Regional Awards for Young Scientists Honorees Announced during National Postdoc Appreciation Week

The winning postdoctoral researchers include a neuroscientist improving memory formation and recall, an astrophysicist illuminating dark matter, and a biochemist refining gene-editing technologies

NEW YORK – September 23, 2020 – Today, during National Postdoc Appreciation Week, the Blavatnik Family Foundation and the New York Academy of Sciences announced the three Winners and six Finalists of the 2020 Blavatnik Regional Awards for Young Scientists. The Blavatnik Regional Awards honor outstanding postdoctoral scientists from academic research institutions across New York, New Jersey, and Connecticut and recognize researchers in three scientific categories: Life Sciences, Physical Sciences & Engineering, and Chemistry. A distinguished jury of leading scientists and engineers from across the New York region selects, in each category, one Winner, who is awarded a $30,000 unrestricted prize, and two Finalists, who are each awarded $10,000. For the 2020 competition, there were 154 outstanding nominations from 24 academic institutions in the New York metropolitan region (Tri-State area). The 2020 Blavatnik Regional Awards Winners and Finalists will be honored alongside the 2020 and 2021 Blavatnik National Awards honorees on September 27, 2021, at the American Museum of Natural History in New York.

The 2020 Blavatnik Regional Awards Winners are:

- **Life Sciences: Antonio Fernández-Ruiz, PhD, nominated by New York University**
  Antonio Fernández-Ruiz has expanded our understanding of how neurons in the brain coordinate their activity to support our ability to form and recall memories. By uncovering the mechanisms of this coordinated activity in the brain, he was also able to alter how neurons are reactivated, demonstrating that memory can be improved artificially. Fernández-Ruiz will be transitioning to a tenure-track position at Cornell University in July, 2021.

- **Physical Sciences & Engineering: Adrian Price-Whelan, PhD, nominated by Flatiron Institute**
  Adrian Price-Whelan's innovative use of advanced statistical analysis and computational techniques has unlocked one of the biggest mysteries of the universe—dark matter. Utilizing satellite data to analyze the motions of stars throughout the outer regions of the Milky Way, Price-Whelan's work has provided the first clear evidence of dark matter substructure in the outskirts of our galaxy.

- **Chemistry: Ning Jia, PhD, nominated by Memorial Sloan Kettering Cancer Center**
  Ning Jia has unlocked key biological mechanisms that govern the function of enzymes and CRISPR-Cas systems, such as those used in gene editing. Jia's research has provided scientists with an enhanced understanding of the functions and structure of individual atoms in biological

molecules. In the case of her work on CRISPR-Cas systems, this detailed knowledge is necessary if we are to demonstrate that gene-editing can be used in the future to cure certain genetic diseases.

"Scientists strive to solve the world's most urgent problems, leading to further discovery, innovation, economic growth, and societal progress," said Len Blavatnik, Founder and Chairman of Access Industries, head of the Blavatnik Family Foundation, and member of the President's Council of the New York Academy of Sciences. "Our nation's thriving scientific ecosystem is reliant, to a large degree, on scientists and engineers coming to America to study and conduct research. I'm pleased that our 2020 honorees hail from multiple countries, highlighting yet again how essential it is for scientists the world over to work together to address humankind's greatest challenges and improve the quality of life for everyone."

Nicholas B. Dirks, the New York Academy of Sciences' new President and CEO said: "Postdocs are the fuel running the engines of scientific research. We are incredibly proud to announce these outstanding postdoctoral Winners and Finalists of the 2020 Blavatnik Regional Awards, especially during National Postdoc Appreciation Week—a week dedicated to recognizing the significant contributions that postdoctoral scholars make to American research and discovery. The Academy, through administering programs for postdoctoral scientists such as the Blavatnik Regional Awards and Science Alliance, is committed to supporting these young investigators as they transition to the next stages in their career and beyond."

The following postdoctoral researchers have been named Finalists in their respective categories:

Life Sciences

- **Amelia Escolano, PhD, nominated by The Rockefeller University**
  Amelia Escolano was recognized for her groundbreaking HIV research, designing a novel immunization procedure that could lead to a vaccine against HIV-1. By sequentially exposing mice to several different forms of a protein found on the HIV-1 virus over a five month period, Escolano was able to train the immune system to make antibodies that neutralize a broad diversity of strains of the rapidly mutating HIV-1 virus.

- **Marc Schneeberger Pané, PhD, nominated by The Rockefeller University**
  Marc Schneeberger Pané has discovered that a specific area of the brain usually associated with mood and wakefulness also controls energy balance and body weight by regulating feeding behavior and body temperature. Two types of neurons in this area are activated by different energy states (hunger, satiety) or with temperature challenges (heat). Importantly, activation of these neurons leads to strong effects in feeding or temperature regulation. As a result body weight is changed. Obesity is a disease in which energy balance is dysregulated, so this new finding offers promise for developing novel drugs to treat this chronic, widespread condition.

Physical Sciences & Engineering

- **Zahra Abdollahnejad, PhD, nominated by University of Connecticut**
  Zahra Abdollahnejad was recognized for the design and development of green construction materials for buildings. Concrete is responsible for 4-8% of the world's global carbon dioxide (CO_2) emissions. Through her development of specialized mixtures of environmentally-friendly concretes, mortars, and insulating foams, Abdollahnejad could significantly reduce the impact of concrete on global warming by a 50-90% carbon footprint compared to cementitious compositions, making newly constructed buildings more energy-efficient. She is also trying to develop sustainable construction materials with near-zero CO_2 emissions. Her work is re-shaping how the construction industry uses concrete, creating more sustainable buildings for our future.

- **Shruti Puri, PhD, nominated by Yale University**
  Shruti Puri was recognized for her extraordinary theoretical discoveries in quantum information storage and quantum computing. In quantum computing systems, error (noise) is an obstacle to accuracy and computational advantage. Puri's rigorous theoretical and mathematical treatment of error led to the discovery of a completely new way of storing information in microwave photons (quanta of light), known as the Kerr-cat quantum bit. Puri's discovery makes the path towards scalable quantum computing technologies truly possible, by tailoring the errors affecting the quantum bit in such a way that they become relatively easy to correct. Puri has recently been promoted to a tenure-track position at Yale University.

Chemistry

- **Xianwen Mao, PhD, nominated by Cornell University**
  Xianwen Mao has developed a first-of-its-kind technique called COMPEITS (competition-enabled imaging technique with super-resolution) that allows for real-time optical imaging of non-fluorescent processes—processes that do not give off energy in the form of visible light. His groundbreaking technique allows for the visualization of various classes of non-fluorescent systems and processes, such as surface reactions, neurotransmitters, and chemical warfare agents—all with high resolution and under realistic conditions. This technique could be extremely useful in fields including neuroscience, materials engineering and nanotechnology, where many critical processes are non-fluorescent.

- **Yifei Zhang, PhD, nominated by Columbia University**
  Yifei Zhang has uncovered the principles that govern the overall activity of enzyme cascade reactions—a sequence of successive chemical reactions naturally occurring in living cells. By understanding the interplay between reaction and transport, he has shown that it is possible to engineer cellular components to perform programmable and predictable functions in vitro, including the synthesis of small molecule drugs and therapeutics.

About the Blavatnik Awards for Young Scientists

The Blavatnik Awards for Young Scientists, established by the Blavatnik Family Foundation in the United States in 2007 and independently administered by the New York Academy of Sciences, began by

identifying outstanding regional scientific talent in New York, New Jersey, and Connecticut. The Blavatnik National Awards were first awarded in 2014, and in 2017, the Awards were expanded to honor faculty-rank scientists in the United Kingdom and in Israel. By the close of 2020, the Blavatnik Awards will have conferred prizes totaling over $10.2 million to 321 outstanding young scientists and engineers from more than 46 countries, representing 36 scientific and engineering disciplines. *For updates about the Blavatnik Awards for Young Scientists, please visit* www.blavatnikawards.org *or follow us on* Facebook *and* Twitter *(@BlavatnikAwards).*

About the Blavatnik Family Foundation

The Blavatnik Family Foundation is an active supporter of world-renowned educational, scientific, cultural, and charitable institutions in the United States, the United Kingdom, Israel, Russia, and throughout the world. The Foundation is headed by Len Blavatnik, a global industrialist and philanthropist and the Founder and Chairman of Access Industries, a privately-held industrial group based in the US with global strategic interests. *Visit:* www.accessindustries.com or *www.blavatnikfoundation.org*.

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