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Brito, Lambert, Yapici, Lancaster receive Sloan Fellowships

By Tom Fleischman

Assistant professors Ilana Brito, Guillaume Lambert, Kyle Lancaster and Nilay Yapici have been named recipients of Alfred P. Sloan Foundation fellowships that support early career faculty members' original research and broad-based education related to science, technology and economic performance.

Brito is the Mong Family Sesquicentennial Faculty Fellow in biomedical engineering. Lambert is the Gordon Lankton Sesquicentennial Faculty Fellow in applied and engineering physics. Lancaster teaches in the Department of Chemistry and Chemical Biology. Yapici is the Nancy and Peter Meinig Family Investigator in neurobiology and behavior.

"The Sloan research fellows are the rising stars of the academic community," said Paul L. Joskow, president of the Alfred P. Sloan Foundation, in a statement. A total of 126 U.S. and Canadian researcher were awarded Sloan fellowships this year.

"Through their achievements and ambition," Joskow said, "these young scholars are transforming their fields and opening up entirely new research horizons. We are proud to support them at this crucial stage of their careers."

Brito's lab uses systems biology approaches to study the transmission of bacterial and genetic components of the human microbiome. Her lab uses a wide variety of sample types and methodologies to target these questions from different perspectives, and she has ongoing collaborations at Weill Cornell Medicine. She also has ongoing projects in the developing world to study how differences in the microbiome contribute to health in resource-poor settings.

Brito published a paper last July on the role of "mobile genes" – material that moves between organisms by horizontal gene transfer, as opposed to being vertically inherited – in the human microbiome.

The Lambert Lab pursues interdisciplinary research at the intersection of physics and quantitative biology. The group combines tools from physics, bioengineering and synthetic biology to monitor the response of individual bacteria subjected to environmental fluctuations. The group believes that the study of naturally occurring regulatory systems can lead to the discovery of physical and biological principles broadly applicable to the development of biomedical and diagnostics applications.

Among the group's ongoing research projects is the study of the survival strategies used by bacteria in response to toxic environments.

The Lancaster Group employs synthesis, biochemistry and a broad range of spectroscopic methods to explore small-molecule reactivity as mediated by transition metals. Recent work explored a biological mechanism that helps convert nitrogen-based fertilizer into nitrous oxide, an ozone-depleting greenhouse gas. The group published a paper on the topic in November 2016 in the Proceedings of the National Academy of Sciences.

Yapici's research focuses on understanding how animals make behavioral decisions by integrating their physiologic internal states and external sensory stimuli coming from the environment. The group uses the model organism Drosophila melanogaster – a.k.a. the fruit fly – to understand the fundamental principles of how motivational states regulate food intake decisions on the level of molecules, cells and circuits.

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Yapici arrived at Cornell last year after completing postdoctoral work at Rockefeller University.

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