Two UC Irvine graduate students selected as DOE Office of Science Graduate Student Research Fellows

The fellowship will allow the students to finish their doctoral research while working at Los Alamos National Lab and the Princeton Plasma Physics Lab.

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UC Irvine Physical Sciences Communications

UC Irvine Department of Physics & Astronomy Ph.D. students Ethan Green and David Dang.

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UC Irvine

David Dang and Ethan Green, Ph.D. candidates in the UC Irvine Department of Physics & Astronomy, were selected as fellows of the U.S. Department of Energy's Office of Science Graduate Student Research Program (SCGSR). The fellowship will bolster Dang and Green's research into the physical properties of nanoscale materials and plasma physics, respectively.

For his material work, Dang, who's a student in the lab of Professor Howard Lee, works with collaborators at Los Alamos National Lab (LANL). "The SCGSR provides me with a unique opportunity to continue working with the various scientists at LANL," said Dang, who uses AI-related machine learning program. "Due to the interdisciplinary nature of my project, it requires guidance from experts in optics, nanofabrication, lithography, and of course, machine learning, which are available to me as part of this collaboration with the national lab."

LANL, Dang explained, is home to some of the most advanced supercomputing and optical measurement equipment in the world – assets that are helping him research so-called optical metamaterials, which are nanometer-scaled materials that can manipulate light in ways that conventional lenses cannot.

Meanwhile, Green's fellowship will give him the opportunity to work at the Princeton Plasma Physics Lab (PPPL) at Princeton University in New Jersey. "My work contributes to the study of magnetically confined plasmas, for the purpose of producing fusion energy," said Green.

Fusion energy is often touted as a potential source of renewable energy, and Green's research aims to use a beam of injected particles to control and shape the electromagnetic fields within the plasma in order to better keep the plasma and the energy produced through fusion confined to the core where high energy and density must be sustained to continually produce fusion reactions.

"The main benefit to my research will come from access to many of the foremost experts on stellarators and plasma physics," Green said. "PPPL is home to one of if not the most advanced stellarator optimization codes, so working with them will be necessary and helpful for my research into optimization.

Read more: Three physical sciences graduate students receive 2024-2025 Los Alamos National Lab Research Fellowship

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