

UCLA Department of Physics & Astronomy

COLLOQUIUM

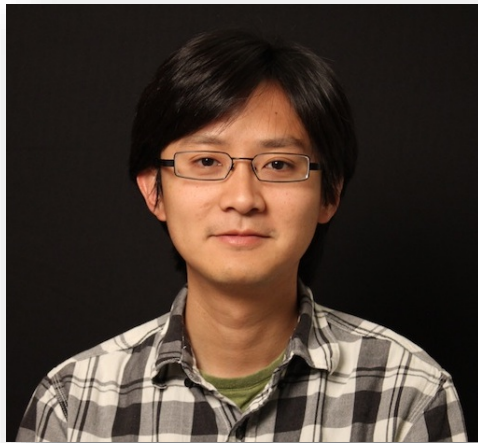
Thursday, February 17, 2022 at 4 p.m.

PAB, 1-434

Supermassive black holes, fundamental physics,
machine learning, and beyond

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In this talk, I will discuss three major research themes: (1) the frontiers of our understanding of supermassive black holes and how we can use Sgr A*, the supermassive black hole at the center of the Milky Way as a laboratory to test fundamental physics. (2) The formation and evolution of the stars around our supermassive black hole. I will show how the long time-baseline of Galactic center observations, improved instrumental capabilities, and use of statistical methods to combine many types of data have led us to new insights into how the centers of galaxies form. (3) The use of machine learning in astrophysics to help answer big questions such as: what is the nature of dark energy? What kind of universe do we live in? I will also discuss how we are preparing to take advantage of upcoming major facilities like the James Webb Space Telescope, the Thirty Meter Telescope, and the Vera Rubin Telescope to advance these three research areas.

Undergraduates Welcome!