UCLA Division of Astronomy & Astrophysics

Astronomy Colloquium

Wednesday, April 1 at 3:30 PM
Room 1-434 PAB

Dr. Ethan Nadler
UCSD

Revealing Dark Matter and Galaxy Formation with Small-Scale Structure

Over the next decade, facilities including the Vera C. Rubin Observatory and Nancy Grace Roman Space Telescope will discover hundreds of ultra-faint dwarf galaxies and thousands of strong gravitational lenses. I will describe a research program that uses these observations to probe the threshold of galaxy formation and fundamental dark matter properties. Critically, I will show that combining upcoming Rubin and Roman dwarf galaxy surveys with JWST strong-lensing data may reveal completely dark halos for the first time. I will also present new cosmological simulation suites beyond the cold dark matter paradigm, including self-interacting dark matter simulations that address current small-scale structure anomalies, to facilitate this effort.

Hosted by Profs. Smadar Naoz, Alice Shapley and Erik Petigura.

Undergrads are encouraged to attend.