SMCAS presents:

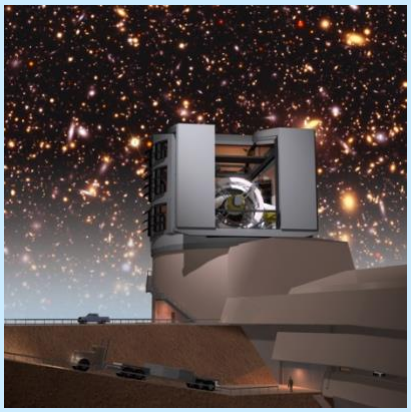
Ethan Nadler

Graduate Student, Stanford University

Searching for the Darkest Galaxies: Ultra-Faint Dwarfs as Dark Matter Laboratories

7:00 p.m., Saturday, April 17, 2021. Free and open to the public.
Via Zoom Videoconference, virtual Star Party following.
Zoom Meeting ID: 253 926 2920 Passcode: SMCAS or use following link:
https://us02web.zoom.us/j/2539262920?pwd=U1puVE1nQVZHUW1vaGUrbGczMGxwQT09

How small is the faintest galaxy in the Universe, and what is the nature of the dark matter particle? These seemingly unrelated questions are brought together by so-called "ultra-faint" dwarf galaxies (UFDs). The smallest UFDs contain as few as hundreds of stars and are the most dark-matter dominated systems in the Universe. Modern photometric surveys revolutionized the search for UFDs, more than doubling our census of these extreme systems. Ethan will describe how UFDs provide pristine laboratories for measuring dark matter particle properties. Next-generation observational facilities including the Vera C. Rubin Observatory are expected to discover the entire population of nearby UFDs, pointing to a bright future for these dark galaxies.



A simulated night sky provides a background for the Rubin Observatory facility on Cerro Pachón in this artist's conception.

Ethan Nadler is a fifth-year PhD student at Stanford University and will begin as postdoctoral fellow at Carnegie Observatories and USC in September 2021. Ethan uses observations of small-scale cosmic structure to study dark matter and galaxy formation physics. He works at the interface of cosmology, computational astrophysics, and dark matter theory, and is a member of the Dark Energy Survey, the Dark Energy Science Collaboration, and the SAGA Survey (Satellites Around Galactic Analogs).