# Friends Of The Kavli Institute For Theoretical Physics

## Chalk Talk

# Small Galaxies, Big Science: Probing Fundamental Physics with Dwarf Galaxies

Our Milky Way galaxy is surrounded by a flock of tiny satellite galaxies. These ultra-faint "dwarf" galaxies are the most ancient, most chemically pristine, and most dark-matter-dominated stellar systems ever observed. Observations of these extreme galaxies provide a unique opportunity to test the standard cold dark matter model of cosmology, while also providing insights into the formation of galaxies, stars, and the heavy elements. Due to their low luminosity, the discovery of the faintest galaxies has only recently become possible thanks to the unprecedented sensitivity of digital sky surveys. However, even with our most powerful telescopes, our searches are limited to our own "cosmic backyard". I will describe recent advances in our census of the Milky Way's neighborhood, and how observations of our smallest galactic neighbors are helping answer some of our biggest questions.

Wednesday, May 16, 2018

Kohn Hall, UCSB

5:30 Courtyard Reception

6:15 - 7:15 Presentation and Discussion

Attendance by Reservation Only
RSVP by Friday, May 11:
*Online*: https://www.kitp.ucsb.edu/chalk-talk-rsvp
*Phone:* (805) 893-6350 *or* friends@kitp.ucsb.edu

Lot 10 parking
As you enter campus from Hwy 217, turn right onto Mesa Rd, merge into the left lane, and at the stop light turn left into Parking Structure 10. Park, buy a permit from the dispenser (near the elevator and stairs), and display the permit on your dashboard. The KITP is right next door to the parking structure.


## Alex Drlica-Wagner

*David N. Schramm Fellow, Fermi National Accelerator Laboratory*


Alex Drlica-Wagner is the David N. Schramm fellow in experimental particle astrophysics at Fermi National Accelerator Laboratory. His research uses astrophysical experiments to understand the fundamental properties of our Universe. In particular, using observations of the smallest galaxies to probe the fundamental nature of dark matter. He is a member of several large experimental collaborations including the Fermi Large Area Telescope, the Dark Energy Survey, and the upcoming Large Synoptic Survey Telescope.
Alex received his B.A. in Physics from Washington University in St. Louis and his Ph.D. in Physics from Stanford University. He is the 2018 Evans Visiting Scholar in Astrophysics at UC Irvine, the 2016 Alvin Tollestrup award recipient at Fermilab, and an Associate Fellow at the Kavli Institute for Cosmological Physics at the University of Chicago.