UW | College of Engineering and Physical Sciences
Physics and Astronomy

Claire Poppett

Berkeley / LBNL

Astronomy

" Redshifts by Breakfast but what is for lunch? From DESI to Stage-5 Spectroscopy"

October 18, 2024

4:00pm MT; PS Building, RM 234

The Dark Energy Spectroscopic Instrument (DESI) is an ultra-efficient multi-object spectrograph installed on the Mayall telescope. DESI routinely collects spectra from ~2 million objects per month, and delivers nightly redshifts in time for morning coffee. The DESI survey is now more than 60% complete, and so planning for future campaigns is beginning in earnest. I will describe the DESI "Stage-4" experiment, with a focus on how the design of the DESI instrument enables the survey to study dark energy. I will then present a proposal for an upgraded "DESI-2" survey, which would, in part, survey higher-redshift sources to probe early dark energy and the growth of structure in the matter-dominated regime. Finally, I will detail requirements to achieve a "Stage-5" experiment, which could be met by upgrading the Mayall and Blanco telescopes and installing augmented DESI-type devices at each of these facilities. I will outline proposed designs for such instruments, and the path towards realizing these designs!