**Idaho State University
Physics Colloquium**

**Characterizing Cosmic Acceleration with the Dark Energy Spectroscopic Instrument**

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The nature of dark energy, the mysterious negative pressure that drives cosmic acceleration, remains one of the greatest enigmas of modern physics. The Dark Energy Spectroscopic Instrument (DESI) is a robotic multi-object spectrograph mounted on the Mayall 4-meter telescope, which can obtain spectra of ~5000 objects over ~3 degrees of the sky in a single exposure. DESI has just embarked on a five-year survey of more than 30 million galaxies and quasars, which will produce precise new constraints on the expansion history of the Universe. In this talk, I will give an overview of current observational constraints on dark energy from large sky surveys, and how DESI will improve these constraints. In particular, I will outline how the Baryon Acoustic Oscillation (BAO) method can be used to characterize the acceleration of the Universe via measurements of the distance-redshift relation across a broad swathe of cosmic time.

**Monday, September 20 2021
Via Zoom(**[**https://isu.zoom.us/j/89123764436**](https://isu.zoom.us/j/89123764436)**)
4:00 – 4:50 pm**