Colloquium Notice

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Understanding the Universe through distant galaxies

Understanding the physical properties of galaxies and their evolution through cosmic time means learning more about the Hubble expansion, gravity, and the physical mechanisms that regulate the growth of structures. My work focuses on developing and using better tools to extract maximal information from ongoing and future data from large galaxy surveys, such as CANDELS and LSST. I will present my efforts at improving our ability to determine galaxy properties through Spectral Energy Distribution (SED) fitting. I will introduce GalMC and SpeedyMC, the Markov Chain Monte Carlo algorithms for SED fitting I created, and show how they can be used to recover the age, mass, dust content, metallicity and star formation history of galaxies, as well as to jointly determine photometric redshifts and SED fitting parameters. If time allows it, I will describe the science goals of the Hobby Eberly Telescope Dark Energy eXperiment (HETDEX), which is set to discover several hundred thousand Lyman Alpha Emitting galaxies at $2 < z < 3.5$ and use them to shed light on the behavior of dark energy and gravity in this largely unexplored redshift range, and summarize our recent efforts in optimizing the sample selection using Bayesian statistics and machine learning techniques.

Monday
September 25, 2017
Starts at 12:15 PM
Coffee at 12:00 PM
Physics Conference Room, SB B326