PHYSICS AND ASTRONOMY
SEMINAR

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"Milky Way, machine learning, big data"

Abstract

"Understanding physical processes responsible for the formation and evolution of galaxies like the Milky Way is a fundamental but unsolved problem in astrophysics. Fortunately, most stars are long-lived. As such, using the stars as "fossil records" (what is known as Galactic archaeology) can offer unparalleled insight into the assembly of galaxies. In recent years, the landscape of Galactic archaeology is rapidly changing thanks to on-going large-scale surveys (astrometry, photometry, spectroscopy, asteroseismology) which provide a few orders of magnitude more stars than before. In this talk, I will discuss new "phenomenological" opportunities enabled by large surveys. I will also discuss how machine-learning tools could leverage the big data about the Milky Way by maximally harnessing information from low-resolution stellar spectra as well as the time-series photometric fluxes of stars. I will also present the new opportunities in Galactic archaeology in the era of deep photometry and spectroscopy, such as LSST, JWST, PFS, and MSE".

Friday, March 22, 2019

10:30 a.m.
HSD Building – Room A264