Astrophysics Seminar

Title: **A new era of Galactic Archaeology**

Speaker: **Yuan-Sen Ting** *(IAS, Princeton)*

Time: **10:00am, Wednesday, November 21, 2018**

Venue: **Conference Hall 322, Science Building, Tsinghua University**

Abstract

Understanding physical processes responsible for the formation and evolution of galaxies like the Milky Way is a fundamental problem in astrophysics. However, a key challenge is that the properties and orbits of the stars can only be observed at present: to understand what happened in the Milky Way at earlier epochs, one must explore "archaeological" techniques. The Galactic archaeology landscape 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 with these surveys. I will introduce a new set of machine-learning tools for maximally harness information from spectra (LAMOST), photometric fluxes (Gaia) and light curves (TESS). I will also present the new opportunities in Galactic archaeology in the era of deep photometry, such as LSST and DES.

A short bio:

Yuan-Sen Ting is a Hubble Fellow at the Institute for Advanced Study in Princeton, jointly affiliated with Princeton University and the Carnegie Observatories. He obtained his Ph.D. in astronomy and astrophysics in 2017 from Harvard University funded through a NASA Earth and Space Science Fellowship. Before that, he completed a concurrent double degrees and masters program from the National University of Singapore and Ecole Polytechnique in France in 2012. He was awarded the Price Prize in 2016 in recognition of his work on the Milky Way which operates at the intersection of theoretical modeling, observational astronomy, machine learning, and data science.