

## ASTROPHYSICS SEMINAR SERIES

### **The Southern Stellar Stream Spectroscopic Survey (S5)**

**Dr. Ting Li**

Fermilab

Tuesday, October 23

12:30 pm - Rm 184 NSH

Recently, more than a dozen new stellar streams in the Milky Way were discovered in the southern hemisphere with the Dark Energy Survey (DES). In this talk, I will present an ongoing spectroscopic program S5, which maps these southern streams with the 2df/AAOmega spectrograph on the Anglo-Australian Telescope. S5 is the first systematic program pursuing a complete census of known streams in the southern hemisphere. The radial velocities and stellar metallicities from S5, together with the proper motions from Gaia DR2, provide a unique sample to understand the Milky Way halo populations, the progenitors and formation of the streams, the mass and shape of the Milky Way potential, and to test the characteristics of dark matter. So far, the S5 program has obtained the 6D+1 (metallicity) phase space information for 10 streams in the DES footprint, all of which are the first-time measurements for these southern streams, and we are expanding our program beyond the DES footprint to cover more southern streams. I will give an overview of the S5 program, including target selection, observation, and data analysis, and I will end with a discussion of the implications of the preliminary results from S5.



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