

Samantha Lawler

NRC-Herzberg

Planet 9 or Planet Nein? Discoveries in the Outer Solar System

Tuesday, 4 December 2018 • 3:30 pm
MSI Conference Room • 3550 University

The Outer Solar System Origins Survey (OSSOS) was a 5 year survey on the Canada-France-Hawaii Telescope that discovered over 800 new trans-Neptunian objects (TNOs) with some of the most precisely-measured orbits to date. OSSOS was designed to carefully track all possible observational biases, and account for these biases via Survey Simulator software that can be used to statistically test different TNO orbital distribution models. Accounting for all possible survey biases is particularly important for high-pericenter TNOs, which are only detectable for a small fraction of their orbit. High-pericenter TNOs have recently been in the news for showing an apparent clustering in their orbital distribution, which some propose is caused by a additional planet in the distant Solar System (popularly referred to as Planet 9). But is this apparent orbital clustering real? I will discuss the distribution of these hard-to-detect high-pericenter TNOs, as well as other interesting discoveries from the OSSOS survey, such as how many Pluto-sized planetesimals formed in the early Kuiper belt, the orbital structure of resonances and implications for Neptune's migration, and the dynamical connections between the Kuiper belt and the Oort cloud.

