Physics and Space Sciences Special Colloquium

Understanding Solar System History and Evolution Through Asteroid Spectroscopy

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Asteroids are essential to our understanding of the history of our Solar System. Unlike the major planets, which have undergone major alterations from a variety of physical, geological, and atmospheric processes, asteroids are minimally altered objects that enable us to look back at the cosmochemical variations in the early Solar System.

My research utilizes reflectance spectroscopy of asteroids throughout the Solar System to remotely infer their compositions. Each asteroid population contributes to our understanding of the Solar System as a whole. The dynamical lifetimes of near-Earth asteroids (NEAs) are far shorter than the age of the Solar System and the population is regularly replenished from within the Main Asteroid Belt through a series of complex dynamical interactions. Compositional measurements in conjunction with Main Belt source regions models enable the use of NEAs as compositional tracers from elsewhere in the Solar System. Knowledge of the compositions of asteroids in the Main Belt teaches us about the composition of solids in the Solar nebula, the chemical evolution of these solids, and the subsequent mixing that has occurred since the formation of the Solar System. I will highlight my recent results and discuss how spectroscopy of these objects can be used to understand the formation and evolution of our Solar System.

Friday, March 20, 2015

Meet and Greet

3:15-3:45

OPS Room 144

Colloquium

4:00-5:00

OPS Room 140

Refreshments will be served