**SAN DIEGO STATE UNIVERSITY DEPARTMENT OF PHYSICS AND DEPARTMENT OF ASTRONOMY COLLOQUIUM**

**Speaker: Prof. Daniel Fabrycky (University of Chicago)**

**Topic: Architecture and Timing of Planetary Systems**

**Time: 3:00 PM, Friday, February 6, 2015 (refreshments served at 2:45 PM)**

**Place: Room 215, Physics-Astronomy Building (PA-215)**

**Abstract:**

**The Kepler mission represents a breakthrough in the dynamics of exoplanetary systems. Over 500 systems with multiple transiting planets have been found. By comparing transit durations of planets in the same system, we can see that inclinations of planets relative to each other are on the order of 2 degrees, just like in the Solar System. The number of systems with detectably perturbed orbits is now over 100. Models of the systems with high signal-to-noise transit timing variations (TTVs) can uniquely determine the mass and orbital parameters of the perturbing planet. With continued monitoring, the TTVs in these systems will result in mass-radius measurements for cool exoplanets and inferences on the formation and evolution of exoplanetary systems.**