Friends of the Kavli Institute for Theoretical Physics

Chalk Talk

Left: L. Ramondelli; Right: Tobin et al. Nature 2016

Is there a Tatooine?

The three-body problem & beyond

The past twenty years have seen a revolution in our knowledge of planets outside our solar system, driven entirely by improvements in the sensitivity of observations. In this field, the theorists have been forced to play a game of catch-up. Tonight, I will fill you in on some of our theoretical progress by focusing on planetary systems with exotic dynamics, namely planets that reside in star systems containing more than one sun. To understand these systems, I'll begin with a problem in classical celestial mechanics, the so-called "Three-Body Problem." Though seemingly simple, it is notoriously difficult to solve exactly. Indeed, it has been proved that there exists *no* general analytic solution for the motion of three gravitationally interacting objects. Nonetheless, I will show how we can use celestial mechanics and computer simulations to understand "Tatooine-like" systems and their parent stars. Understanding the origins of such systems has implications for mysteries ranging from the progenitors of supernovae to the re-ionization of the universe after the formation of the first galaxies.

Tuesday, March 14, 2017
Kohn Hall, UCSB
5:30 Courtyard Reception
6:15 - 7:15 Presentation and Discussion

Attendance by Reservation Only
RSVP by Friday, March 10:
On-line: https://www.kitp.ucsb.edu/chalk-talk-rsvp
Phone: (805) 893-6383 *or* events@kitp.ucsb.edu

Lot 10 parking
As you enter campus from Hwy 217, turn right onto Mesa Rd, merge into the left lane, and at the stop light turn left into Parking Structure 10. Park, buy a permit from the dispenser (near the elevator and stairs), and display the permit on your dashboard. The KITP is right next door to the parking structure.

Kaitlin Kratter
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Dr. Kratter received her PhD from the University of Toronto and is currently at the Astronomy Dept at Arizona, after holding positions at the Harvard-Smithsonian Center for Astrophysics and CU Boulder. Her work focuses on the extremes of star and planet formation, including planetary systems orbiting multiple stars. When not exploring the Universe from her office, she enjoys running in Arizona's spectacular desert mountain ranges.