



San Mateo County Astronomical Society



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SMCAS General Meeting and Presentation on Friday September 1, 2017

[Dr. Vanessa Bailey](#)

Astronomer, Post Doctoral Scholar, Stanford University, KIPAC

Finding Exoplanets with the Gemini Planet Imager

Friday, September 1, 2017, [College of San Mateo, Building 36](#)

SMCAS General meeting at 7:00 p.m. ISC Room, room 110

Presentation at 8:00 p.m. [Planetarium](#)

Free and open to the public, free parking (recommend lots 5 or 6).

The Gemini Planet Imager Exoplanet Survey (GPIES), officially launched in November 2014, is an ambitious multi-year study dedicated to observing 600 young, nearby star systems to image young Jupiters and planet forming debris disks using the GPI instrument installed on the Gemini South telescope in Chile. The GPI instrument team and the GPIES survey team are composed of researchers from several dozen institutions in North and South America; the teams are led by Bruce Macintosh at Stanford University.

Project challenges run the gamut from instrument engineering to data analysis to theoretical modeling of planets' atmospheres. The engineering challenges are daunting: GPI takes pictures of planets orbiting stars many lightyears away. These high-resolution images must be able to detect planets a million times fainter than their host stars, despite looking through Earth's turbulent atmosphere. Adaptive Optics, Vanessa's specialty, is a key to obtaining these images. In this talk, Vanessa will give us an overview of the challenges of building and operating a planet imaging instrument, the role of adaptive optics, and some of GPIES' exciting and unexpected results.

Dr. Vanessa Baily is a postdoctoral Scholar at Stanford University and KIPAC (Kavli Institute for Particle Astrophysics and Cosmology) where she is working on Adaptive Optics for the [Gemini Planet Imager](#). Vanessa received a BS in Astrophysics with honors, and Physics summa cum laude, from the University of Minnesota in 2009. She earned her PhD in Astronomy from the University of Arizona in 2015, based on her work with another planet imaging instrument: the Large Binocular Telescope Interferometer.

