

Physics and Space Science Colloquia

Friday, August 29, 2014

OPS 140

4:00 - 5:00 pm

Hubble Space Telescope investigations of the Two Moons of the Intriguing Dwarf Planet Haumea

Pluto and its cousins in the outer solar system are leftover fingerprints of the processes involved in the formation of the solar system. One cousin, the dwarf planet Haumea, is arguably the most interesting object in the outer solar system. I will describe how the Hubble Space Telescope is helping to track the positions of the two interacting moons of Haumea to shed more light on the unsolved mystery of its creation

The giant magnetic field of NGC 1624-2 viewed by HST

I will present how the Hubble Space Telescope will be used to better understand the O-star NGC 1624-2, the most magnetic object of his kind. This massive star possesses a magnetic field 20,000 times stronger than the sun's and nearly 10 times stronger than that detected around any other high-mass star. Magnetic fields of this strength are extremely rare – they are only known to exist in a few other stars of much lower mass. These new observations could help shed light on what role the magnetism plays in the evolution of stars.

The Physics of the Jets of Powerful Radio Galaxies and Quasars

My project is HST polarimetry of the jet of 3C 273, an iconic jet that was one of the first two discovered. Polarization is a critical parameter for understanding jet flows, because the emission in the optical and radio band is due to the synchrotron process. The data will confirm which mechanisms are operating to create its optical and X-ray emission, and through comparison with radio and ground-based near-IR polarimetry will show locations where the magnetic fields are being structured by shocks and shears and give clues to particle acceleration mechanisms.



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Dr. Veronique
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Dr. Eric
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