

THE DEPARTMENT OF PHYSICS AND ASTRONOMY PRESENTS  
A SERIES OF LECTURES, DEMONSTRATIONS, AND FILMS

# WHAT PHYSICISTS DO

*"A physicist is just an atom's way of looking at itself." - N. Bohr*

## SEVENTY-EIGHTH SERIES

FALL 2009

**Mondays at 4:00 p.m.**

**Darwin 103**

**Coffee at 3:30 p.m.**

**AUG 31 IMAGING A PLANET AROUND FOMALHAUT USING THE HUBBLE SPACE TELESCOPE**

Dr. Paul Kalas of University of California, Berkeley tells us how to spot an extrasolar planet from Earth.

**SEP 14 CONDENSED MATTER LIGHT SCATTERING**

Dr. Thomas Peter Devereaux of Stanford University is the head of the X-ray Science and Techniques Group at the Stanford Institute for Materials and Energy Sciences, which focuses on the scientific foundation related to the energy challenge facing our society. He will discuss using the tools of computational physics to understand quantum materials.

**SEP 21 CULTIVATING SCIENTIST AND ENGINEER EDUCATORS**

Dr. Anne Metevier of the Center for Adaptive Optics at UC Santa Cruz will describe her work training early-career scientists and engineers to teach more effectively by using methods that promote inquiry and an equitable college classroom environment.

**SEP 28 PEEKING AT THE YOUNGEST STARS**

Dr. Tom Greene of NASA's Ames Research Center will describe what infrared spectroscopic observations are telling us about very young sun-like stars while they are still accreting their last bits of mass and before their planetary systems have formed.

**OCT 5 THE RICH PHYSICS OF NUCLEAR MUON CAPTURE**

Dr. Tom Banks of the University of California, Berkeley will describe recent efforts by the MuCap Collaboration to precisely measure the rate of nuclear muon capture in hydrogen, and how the process of muon capture--which involves electromagnetism, the weak interaction, and the strong interaction--is a unique confluence of a diverse range of physics.

**OCT 12 FIRST RESULTS FROM THE KEPLER MISSION TO FIND EARTH-SIZED EXOPLANETS**

Dr. Gibor Basri, Professor of Astronomy and Vice Chancellor for Equity and Inclusion at the University of California at Berkeley, will discuss the latest from NASA's new exoplanet-hunting Kepler space telescope.

**OCT 19 FORMATION AND EVOLUTION OF MASSIVE GALAXIES**

Dr. Mariska Kriek of Princeton University will discuss the formation and evolution of massive galaxies.

**OCT 26 SOFIA - THE STRATOSPHERIC OBSERVATORY FOR INFRARED ASTRONOMY**

Dr. Dana Backman, the director of education and public outreach for SOFIA, will give us a status report NASA's new airborne observatory, a 2.5-meter telescope mounted in a Boeing 747.

**NOV 2 THE MILKY WAY'S HIDDEN PAST**

Dr. Constance Rockosi of the University of California, Santa Cruz will talk about what we've discovered about our Galaxy's hidden past and how we can use that past to connect observations of the early universe with the galaxies we see today.

**NOV 9 EXTREME PLANETARY ATMOSPHERES**

Dr. Jonathan Fortney of the University of California, Santa Cruz will show how our understanding of planetary atmospheres is being revolutionized by observations of the super-heated class of Jupiter-like planets that orbit very close to their parent stars.

**NOV 16 THE SEARCH FOR THE HIGGS BOSON**

Dr. John Conway of University of California, Davis will discuss the use of the Tevatron accelerator at Fermilab and the Large Hadron Collider at CERN to search for new particles such as the Higgs Boson.

**NOV 23 PLUTONIUM, THE MOST ENIGMATIC OF ALL METALS**

Dr. Per Soderlind of Lawrence Livermore National Laboratory will discuss some of the peculiarities of this metal and how quantum-mechanical electronic structure from density-functional theory attempts to explain them.



**This series is supported entirely by private donations.**

Department of Physics and Astronomy, Sonoma State University, Rohnert Park, CA 94928-3609. (707) 664-2119  
phys.astro@sonoma.edu <http://phys-astro.sonoma.edu/wpd/>