

Joint Astronomy / EPS Colloquium

March 1, 2007

Tea: 3:30pm, Astronomy Lounge

Colloquium: 4:00pm, 1 Le Conte

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**EXTREME PLANETARY ATMOSPHERES:  
OBSERVATIONS AND MODELS OF HOT  
JUPITERS**

The extrasolar planets known as "hot Jupiters" are gas giants (like Jupiter and Saturn) that orbit within  $\sim 0.05$  AU of their parent stars. They therefore receive 10,000 times more incident flux from their stars than Jupiter receives from the Sun. Thermal infrared flux from these planets, which have effective temperatures from  $\sim 1200$  to 2000 K, can be seen with the Spitzer Space Telescope. First, I will report on the latest observations of these planets. The majority of my talk will focus on recent efforts to model these atmospheres. Radiative-convective equilibrium models, as well as 2D and 3D dynamical models, have been computed to help us understand the atmospheric temperature structure, chemistry, and global circulation of these planets. These atmospheres, which may feature supersonic winds and clouds of silicates and iron, are even more exotic than anything we've seen in our solar system.