The video and slide of previous colloquia and more information can be found in “events” at http://gcosmo.bao.ac.cn/. You are welcome to nominate speakers to colloquium@nao.cas.cn.

国台学术报告 NAOC COLLOQUIUM

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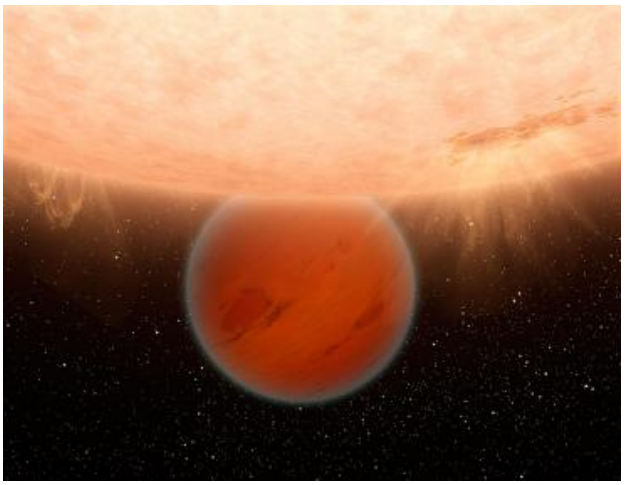
Time: Wednesday 2:30 PM, Mar. 26 Location: A601 NAOC

The shortest-period planets

Prof. Joshua Winn (MIT)

Josh Winn is a physicist and astronomer at the Massachusetts Institute of Technology. He is from Deerfield, Illinois. He graduated from MIT in 1994 with S.B. and S.M. degrees in physics. After spending a year as a Fulbright Scholar in the UK, at Cambridge University, he returned to MIT as a Hertz Fellow.While in graduate school, he worked in medical physics, condensed-matter physics, and astrophysics, and wrote for the science section of The Economist. He earned a Ph.D. in physics in 2001, and subsequently held NSF and NASA postdoctoral fellowships at the Harvard-Smithsonian Center for Astrophysics. He joined the MIT faculty in January 2006. His research goals are to explore the properties of planets around other stars, understand how planets form and evolve, and make progress on the age-old question of whether there are other planets capable of supporting life. His group uses optical and infrared telescopes to study exoplanetary systems, especially those in which the star and planet eclipse one another. He is a member of the NASA Kepler team and Deputy Science Director of the Transiting Exoplanet Survey Satellite, a NASA mission scheduled for launch in 2017. Over the years, he and his group have also pursued topics in stellar astronomy, planetary dynamics, radio interferometry, gravitational lensing, and photonic bandgap materials.



Abstract

Short-period planets are a gift from nature that allowed for the rapid acceleration of exoplanetary science. They are more readily studied than long-period planets - and their existence and orbital properties pose interesting questions. I will present the results of a search for the shortest-period transiting planets, using data from the Kepler spacecraft. The results show that 0.5% of Sun-like stars have orbiting "lava worlds": terrestrial planets with periods ranging from 4 hours to one day. I will also present a separate study of Doppler-discovered planets, which provides good evidence that "hot Jupiters" with periods of 1-10 days are rapidly destroyed by tidal decay when the host star evolves into a subgiant. Finally, I will describe an upcoming NASA mission, the Transiting Exoplanet Survey Satellite (TESS), which will identify thousands of short-period planets around the nearest and brightest stars in the sky.

All are welcome! Tea, coffee, biscuits will be served at 2:15 P.M.