

# Michelson Summer Workshop

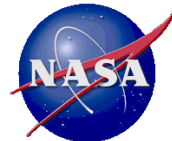
## Planetary Transits: From Detection to Characterization

July 23 - 27, 2007

WORKSHOP LOCATION: NASA Ames Conference Center, Moffett Field, CA



Presented in 2007 by the Michelson Science Center



### SUNDAY

**6:00 – 8:00 pm** – Opening Reception & Registration, Sundowner Inn

### MONDAY: Transits: What, Why, and How?

**9:00 am** - Opening Comments - D. Gelino (Michelson Science Center)

**9:15 am** - Background and History of Exoplanetary Science - G. Laughlin (UCSC)

**10:15 am** - Break

**10:45 am** - Background and History on Transit Science - B. Borucki (NASA Ames)

**11:30 am** - Planetary Physics from Transits - S. Seager (MIT)

**12:00 pm** - Lunch

**1:15 pm** - Planetary Formation & Migration - J. Lissauer (NASA Ames)

**2:00 pm** - Overview Transit Survey Design Considerations: Telescope/Detector/Filter Selection & Observing Strategy - K. von Braun (Michelson Science Center)

**2:45 pm** - Break

**3:15 pm** - CCD Photometry and Associated Limitations - S. Howell (NOAO)

**4:00 pm** - Data Reduction Strategies and Challenges: Relative Photometric Precision - T. Brown (LCOGT)

**4:30 pm** - Q & A Session - Moderator: B. Borucki (NASA Ames)

### TUESDAY: Transits: What, Why, and How? (continued)

**9:00 am** - Operational Experience with Wide-Field Surveys - N. Batalha (SJSU)

**9:30 am** - Data Reduction Strategies and Challenges: White, Pink and Red Noise; Data Trend Filtering & Systematics - F. Pont (Geneva Observatory)

**10:30 am** - Break

**10:50 am** - Data Reduction Strategies and Challenges: Analysis Approach and Transit Detection Algorithms - J. Jenkins (NASA Ames)

**11:35 am** - Laboratory Testing of Photometric Precision Required to Detect Terrestrial Planets - D. Koch (NASA Ames)

**12:05 pm** - Lunch

**1:05 pm** - Follow-up Methods and Elimination of False Positives - G. Torres (Harvard CfA)

**1:45 pm** - Ancillary Science Returns: Stellar Variability, Eclipsing Binaries, and Moving Objects - S. Aigrain (U of Exeter)

**2:15 pm** - Statistics and Simulations of Transit Surveys - S. Gaudi (OSU)

**3:00 pm** - Break

### Planetary Transit Theory

**3:20 pm** - Mass-Radius Relation of Giant Exoplanets - J. Fortney (NASA Ames)

**4:00 pm** - Mass-Radius Relation of Solid Exoplanets - S. Seager (MIT)

**4:40 pm** - Q & A Session - Moderator: S. Aigrain (U of Exeter)

### WEDNESDAY: Characterization of Transiting Planets

**9:00 am** - Secondary Eclipses: Overview, Photometry, Spectroscopy - D. Deming (NASA GSFC)

**9:45 am** - Thermal Phase Curves - H. Knutson (Harvard CfA)

**10:10 am** - Break

**10:30 am** - Planetary Atmospheres: Models and Observations - M. Marley (NASA Ames)

**11:15 am** - Planetary Atmosphere Dynamics - A. Showman (U of Arizona)

**12:00 pm** - Depart for Tour of Lick Observatory (Box lunch included)

### THURSDAY: Characterization of Transiting Planets (continued)

**9:00 am** - Transit Timing - M. Holman (Harvard CfA)

**9:45 am** - The Rossiter-McLaughlin Effect - S. Gaudi (OSU)

**10:05 am** - GJ 436 - M. Gillon (Geneva Observatory)

**10:20 am** - Break

### Space-Based Transit Searches

**10:50 am** - MOST - J. Matthews via Videocon (U of British Columbia)

**11:35 am** - Corot - S. Aigrain (U of Exeter)

**12:05 pm** - Lunch

**1:20 pm** - Kepler - B. Borucki (NASA Ames)

**2:20 pm** - EPOXI/EPOCh - D. Deming (NASA GSFC)

**2:50 pm** - Break

**3:20 pm** - Panel Discussion on Transit Searches and Data Sets - Panel Includes: R. Street (LCOGT), P. Plavchan (IPAC/JPL), K. Sahu (STScI), S. Aigrain (U of Exeter), B. Borucki (NASA Ames), D. Ciardi (Michelson Science Center), B. Lee (U of Florida); Moderator: G. van Belle (Michelson Science Center)

**6:00 pm** - Workshop Banquet at Chef Chu's

### FRIDAY: Opportunities and Future Surveys

**9:00 am** - Towards the Detection and Characterization of Smaller Transiting Planets - D. Latham (Harvard CfA)

**9:55 am** - Statistical Analysis of Transit Surveys and the Compositions of Giant Exoplanets - F. Fressin (OCA Nice)

**10:20 am** - Break

**10:40 am** - Prospecting for Transits in 2MASS and Other Surveys - P. Plavchan (IPAC/JPL)

**11:10 am** - Trials and Tribulations of a Transit Telescope in the Antarctic - D. Caldwell (SETI)

**11:40 am** - The Amateur Contribution: transitsearch.org and oklo.org - G. Laughlin (UCSC)

**12:05 pm** - Asteroseismology: Synergy with Transit Searches - R. Gilliland (STScI)

**12:35 pm** - Lunch

**1:35 pm** - PAN-STARRS & PAN-PLANETS: a Massive Search for Hot Jupiters - C. Afonso (MPIA)

**2:00 pm** - Exoplanet Studies with the Spitzer Warm Mission - D. Deming (NASA GSFC)

**2:25 pm** - Serendipitous Detection of Transiting Planets in Future Synoptic Surveys - S. Gaudi (OSU)

**2:50 pm** - Q & A Session - Moderator: K. von Braun (Michelson Science Center)

**3:10 pm** - Workshop Review: 8 Years of Transits - G. Laughlin (UCSC)

**3:45 pm** - Closing Comments - D. Gelino (Michelson Science Center)

*For more information on the summer workshop, please visit our web site:*  
<http://msc.caltech.edu/workshop/2007/>