THE HEBREW UNIVERSITY OF JERUSALEM
ISRAEL INSTITUTE FOR ADVANCED STUDIES

33rd Winter School in Theoretical Physics on: Exoplanets

28 December 2015 - 8 January 2016

All lectures will take place at the Israel Institute for Advanced Studies, Room 130
on the Edmond J. Safra, Givat Ram Campus

Organizers:
Re’em Sari (The Hebrew University of Jerusalem)
Dave Stevenson (Caltech)
Program

Monday, 28 December

09:00 - 10:00  Registration

10:00 - 11:30  **Dave Stevenson** (Caltech)
               General Introduction - Theory

11:30 - 12:00  Coffee Break

12:00 - 13:30  **Dave Charbonneau** (Harvard University)
               Physics Colloquium: Exoplanets

13:30 - 15:00  Lunch at Beit Bretter

15:00 - 16:30  **Scott Tremaine** (Institute for Advanced Study,
               Princeton)
               Celestial Mechanics I

16:30 - 17:00  Coffee Break

17:00 - 18:30  **Tsevi Mazeh** (Tel Aviv University)
               Detection of Planets with Radial Velocities

18:30 - 20:30  Reception

Tuesday, 29 December

09:00 - 10:30  **Dave Charbonneau** (Harvard University)
               Kepler and its Results

10:30 - 11:00  Coffee Break

11:00 - 12:30  **Ruth Murray-Clay** (University of California at
               Santa Barbara)
               Disks Observations and Interpretation

12:30 - 14:00  Lunch at the Belgium House
14:00 - 15:30  **Scott Tremaine** (Institute for Advanced Study, Princeton)  
Celestial Mechanics II

15:30 - 16:00  Coffee Break

16:00 - 17:30  **Yoram Lithwick** (Northwestern University)  
TTV - Theory

17:30 - 18:00  Coffee Break

18:00 - 19:00  **Tutorial**

19:30 - 21:00  Dinner for speakers

**Wednesday, 30 December**

09:00 - 10:30  **Dave Charbonneau** (Harvard University)  
Kepler and its Results II

10:30 - 11:00  Coffee Break

11:00 - 12:30  **Dan Maoz** (Tel Aviv University)  
Microlensing - Theory and Observations

12:30 - 14:00  Lunch at Beit Bretter

14:00 - 16:45  **Old City of Jerusalem**  
Tour

**Thursday, 31 December**

09:00 - 10:30  **Scott Tremaine** (Institute for Advanced Study, Princeton)  
Numerical Integrations of Orbits

10:30 - 11:00  Coffee Break

11:00 - 12:30  **Dave Stevenson** (Caltech)  
Giant Planet Gas Accretion
12:30 - 14:00   Lunch at Beit Bretter

14:00 - 14:45   **Podolak Morris** (Tel-Aviv University)  
                Accretion of Giant Planets

14:45 - 15:30   **Ravit Helled** (Tel-Aviv University)  
                Alternative Formation Theory and Structure of  
                Giant Planets

15:30 - 16:00   Coffee Break

16:00 - 17:30   **Tsevi Mazeh** (Tel Aviv University)  
                TTV and Stellar Rotation - Observations

20:00 - 00:00   End of Year Party at the Science Museum

**Friday, 1 January**

10:00 - 11:30   **Re’em Sari** (The Hebrew University of Jerusalem)  
                Planet Formation I

11:30 - 12:00   Coffee Break

12:00 - 13:30   **Scott Tremaine** (Institute for Advanced Study,  
                Princeton)  
                Planet Disk Interaction

13:30 - 14:30   Poster session

**Saturday, 2 January**

08:30 - 17:45   Tour to Masada and the Dead Sea

**Sunday, 3 January**

09:00 - 10:30   **Dave Charbonneau** (Harvard University)  
                Observational Challenges & Future of Planet  
                Detection

10:30 - 11:00   Coffee Break
11:00 - 12:30  Adam Showman (University of Arizona)
Atmospheric Structure - Theory

12:30 - 14:00  Lunch at Beit Bretter

14:00 - 15:30  Re’em Sari (The Hebrew University of Jerusalem)
Planet Formation II

15:30 - 16:00  Coffee Break

16:00 - 16:45  Boaz Katz (Weizmann Institute of Science)
Eccentric Migration

16:45 - 17:30  Hagai Perets (Technion, Israel Institute of Technology)
Dynamics in Triple Systems. Kozai and Retrograde Planets

17:30 - 18:00  Coffee Break

18:00 - 19:00  Tutorial

Monday, 4 January

09:00 - 10:30  Tristan Guillot (Observatoire de la Cote d'Azur)
Internal Models I

10:30 - 11:00  Coffee Break

11:00 - 12:30  Adam Showman (University of Arizona)
Atmospheric Dynamics

12:30 - 14:00  Lunch at Beit Bretter

14:00 - 15:30  Ruth Murray-Clay (University of California at Santa Barbara)
Atmospheric Escape from Hot Jupiters and Super Earths

15:30 - 16:00  Coffee Break
16:00 - 16:45  **Yohai Kaspi** (Weizmann Institute of Science)
Atmospheric Dynamics - Solar and Extrasolar

16:45 - 17:30  **Shay Zucker** (Tel-Aviv University)
Planet Detection with Gaia

17:30 - 18:00  Coffee Break

18:00 - 19:00  **Tutorial**

**Tuesday, 5 January**

09:00 - 10:30  **Ruth Murray-Clay** (University of California at Santa Barbara)
Planet System Architecture

10:30 - 11:00  Coffee Break

11:00 - 12:30  **Re’em Sari** (The Hebrew University of Jerusalem)
Inflated Hot Jupiters and Super Earths

12:30 - 14:00  Lunch at the Belgium House

14:00 - 15:30  **Yoram Lithwick** (Northwestern University)
Planetesimals

15:30 - 16:00  Coffee Break

16:00 - 17:30  **Giovanna Tinetti** (University College London)
Cosmochemistry and Galactic Context

17:30 - 18:00  Coffee Break

18:00 - 19:00  **Tutorial**

19:30 - 21:00  Dinner for speakers
**Wednesday, 6 January**

09:00 - 10:30  **Tristan Guillot** (Observatoire de la Cote d'Azur)  
Internal Models II

10:30 - 11:00  Coffee Break

11:00 - 12:30  **Adam Showman** (University of Arizona)  
Rotation and Tides

12:30 - 14:00  Lunch at Beit Bretter

15:30 - 22:00  **Tour:**  
Visit to 2000 Years Old Hideout Caves + Star Gazing

**Thursday, 7 January**

09:00 - 10:30  **Yoram Lithwick** (Northwestern University)  
Formation of Hot Jupiters

10:30 - 11:00  Coffee Break

11:00 - 12:30  **Tristan Guillot** (Observatoire de la Cote d'Azur)  
Planet Evolution

12:30 - 14:00  Lunch at the Belgium House

14:00 - 15:30  **Dave Stevenson** (Caltech)  
Astro Seismology

15:30 - 16:00  Coffee Break

16:00 - 17:30  **Giovanna Tinetti** (University College London)  
Observations of Atmospheres

17:30 - 18:00  Coffee Break

18:00 - 19:00  **Tutorial**
Friday, 8 January

09:00 - 10:30  Giovanna Tinetti (University College London)

10:30 - 11:00  Coffee Break

11:00 - 12:30  Dave Stevenson (Caltech)
               Summary & Theoretical Challenges

12:30 - 14:00  Farewell drinks & Pizza