Big Data - Small Planets
July 7-11, 2019

Venue: Israel Institute for Advanced Studies, Edmond J. Safra Campus, Givat Ram, The Hebrew University of Jerusalem

Sunday, July 7

9:30-10:00	Registration
10:00-10:05	Greetings by **Yitzhak Hen**, Director of the IIAS
10:05-11:00	Welcome, participant introductions (1-minute "elevator pitch")
11:00-11:30	*Coffee break*

Session 1: Instruments and Surveys

11:30-12:00	**Leanne Guy** (LSST): LSST - Science Data Products and Potential for Exoplanet Detection
12:00-12:30	**George Ricker** (MIT): Review of TESS's First Year Survey and Future Plans
12:30-14:00	*Light lunch - IIAS lobby*
14:00-14:30	**Magali Deleuil** (Aix-Marseille University): Exploring the Use of Deep Learning for the PLATO Light Curves Analysis.
14:30-15:00	**Andreas Quirrenbach** (Heidelberg University): CARMENES: Small Stars – Small Planets
15:00-15:30	*Coffee break*
15:30-16:00	**Nuno Santos** (University of Porto): ESPRESSO: First Results from the New Planet Finder
16:00-16:30	**Josh Briegal** (University of Cambridge): Looking for Periodic Signals in Millions of NGTS Light Curves
16:30-17:00	Discussion
17:00	Reception

Monday, July 8

          Session 2: <u>Stellar Activity and Systematics</u>

9:30-10:00   **Eric Ford** (Penn State University): A Bayesian Framework for Analyzing Spectroscopic Timeseries including Stellar Variability & Planets

10:00-10:30 **Andrew Collier Cameron** (University of St Andrews): Peeling Away Stellar Activity from Exoplanet Radial-Velocity Data with SCALPELS

10:30-11:00 *Coffee break*

11:00-11:30 **Ignasi Ribas** (CSIC): Modeling Stellar Activity to Reveal Small Planetary Signals

11:30-12:00 **Suzanne Aigrain** (University of Oxford): Data-Driven Approaches to Mitigating Stellar Activity to Enable the Detection of Earth Twins

12:00-12:30 Discussion

12:30-14:30 *Lunch break - Ha'Ivrit Cafe*

14:30-15:00 **Damien Ségransan** (University of Geneva): Significance of Weak Doppler Signals in Current Radial Velocity Surveys

15:00-15:30 **Lev Tal-Or** (Tel Aviv University): Correcting Radial-Velocity Survey Data for Small Systematic Effects

15:30-16:00 Discussion

Tuesday, July 9

Session 3: Machine Learning

9:30-10:00   **Daniel Angerhausen** (University of Bern): Machine Learning for Exoplanet Research: Lessons and Results from NASA Frontier Development Lab

10:00-10:30   **Megan Ansdell** (UC Berkeley): Using Deep Learning for Exoplanet Transit Science with Kepler

10:30-11:00   *Coffee break*

11:00-11:30   **Hugh Osborn** (Aix-Marseille University): Rapid Classification of TESS Planet Candidates with Convolutional Neural Networks

11:30-12:00   **David Kipping** (Columbia University): Population Inference of Planets and Moons with ABC

12:00-12:30   Discussion

12:30-14:30   *Lunch break - IIAS lobby*

14:30-15:00   **Christian Gilbertson** (Penn State University): Distinguishing Planets from Stellar Variability with Machine Learning

15:00-15:30   **Dovi Poznanski** (Tel Aviv University): Outlier Detection

15:30-16:00   Discussion

18:30   Transportation from campus main entrance

19:00   Conference dinner - Hamotzi Restaurant (113 Jaffa St.)

21:00   Transportation to campus main entrance

Wednesday, July 10

        Session 4: Transit Timing Variations and Dynamics

9:30-10:00   **Dan Fabrycky** (The University of Chicago): Unlocking the Interpretation of Transiting Multi-planet Systems using High Impact Parameters

10:00-10:30 **Tsevi Mazeh** (Tel Aviv University): On Transit Duration Variations in Kepler Data

10:30-11:00 *Coffee break*

11:00-11:30 **Aviv Ofir** (Weizmann Institute of Science): Uniform and Precise Mass Determination for TTV-Bearing Kepler planets

11:30-12:00 Discussion

12:00-13:00 *Light lunch - IIAS lobby*

13:00   Transportation from campus main entrance

13:30   Old city Tour

17:30   Transportation to campus main entrance

Thursday, July 11

Session 5: Statistical Analysis

9:30-10:00   **Sahar Shahaf** (Tel Aviv University): The Brown Dwarf Desert as Revealed by APOGEE Spectroscopic Binaries

10:00-10:30   **Eric Gaidos** (University of Hawaii at Manoa): Discovering the Smallest Planets in the Biggest Data: An Automated Search for Transiting Evaporating Objects

10:30-11:00   *Coffee break*

11:00-11:30   **Barak Zackay** (IAS): Discovering New Gravitational Wave Events in the Open LIGO-Virgo Data - Pipeline, Discoveries and Applications for Finding Exoplanets

11:30-12:00   **Eric Feigelson** (Penn State University): ARPS - AutoRegressive Planet Search

12:00-12:30   Discussion

12:30-14:30   *Lunch break - Fabiano Cafeteria*

14:30-15:00   **Eran Ofek** (Weizmann Institute of Science): Precision Astrometry

15:00-15:30   **Nathan Hara** (University of Geneva): Radial Velocity Data Analysis with Sparse Recovery Technique

15:30-16:00   *Coffee break*

16:00-16:30   **Shay Zucker** (Tel Aviv University): A New Approach to Periodograms

16:30-17:00   Discussion