

4TH ADVANCED SCHOOL ON EXOPLANETARY SCIENCE
Astrophysics of Transiting Exoplanets

May 22 - 26, 2023
Vietri sul Mare, Italy

PROGRAM

Sunday, May 21

- 10:00 am – 3:30 pm **Visit of Herculaneum**
Departure from Lloyd's Baia Hotel
Meeting time: 9:40 am
Expected return at 3:30 pm
- 7:00 pm – 8:00 pm **Welcome cocktail and preregistration**
Lloyd's Baia Hotel

Monday, May 22

- 8:00 am – 9:00 am **Registration**
- 9:00 am – 12:30 pm **Lectures**
- 2:30 pm – 6:30 pm **Lectures**

Tuesday, May 23

- 9:00 am – 12:30 pm **Lectures**
- 2:30 pm – 6:30 pm **Lectures**

Wednesday, May 24

- 9:00 am – 1:30 pm **Lectures**
- 3:00 pm – 7:30 pm **Tour of the Amalfi Coast**
- 7:30 pm – 10:30 pm **Social Dinner**

Thursday, May 25

- 9:00 am – 12:30 pm **Lectures**
- 2:30 pm – 6:30 pm **Lectures**

Friday, May 26

- 9:00 am – 12:30 pm **Lectures**
- 2:30 pm – 6:30 pm **Lectures**

Saturday, May 27

- 9:00 am – 6:30 pm **Hiking on the Path of the Gods**
Departure from Lloyd's Baia Hotel
Meeting time: 8:50 am
Expected return at 6:30 pm

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LECTURE PROGRAM

Monday, May 22

- 9:00 am Lecture #1 by **Courtney Dressing**
Introduction to Planetary Transits & Early Searches for Transiting Planets
- 10:00 am Lecture #1 by **Eric Ford**
Geometry of transiting multi-planet systems
- 11:00 am Coffee break
- 11:30 am Lecture #1 by **Laura Kreidberg**
How do we “see” exoplanet atmospheres? I. Methods and techniques
- 12:30 pm - 2:30 pm Lunch and free time

- 2:30 pm Contribution #1 by **Amy Tuson**
Discovery of Long-Period Transiting Exoplanets with TESS and Cheops
- 2:45 pm Contribution #2 by **Mario Basilicata**
Detection of Multiple Molecular Species in the atmosphere of the warm-Neptune HAT-P-11 b at High Spectral Resolution with GIANO-B
- 3:00 pm Lecture #1 by **James Owen**
Overview of atmosphere loss mechanisms and theory of hydrodynamic escape from close-in exoplanets I
- 4:00 pm Coffee break
- 4:30 pm Lecture #1 by **Aldo Bonomo**
The radial-velocity and transit methods
- 5:30 pm Lecture #2 by **Courtney Dressing**
Highlights from the Kepler Mission
- 7:30 pm Dinner and free time

Tuesday, May 23

- 9:00 am Lecture #2 by **Eric Ford**
Prototypical transiting multi-planet systems
- 10:00 am Lecture #2 by **Laura Kreidberg**
How do we “see exoplanet atmospheres? II. History and key facilities
- 11:00 am Coffee break
- 11:30 am Lecture #2 by **James Owen**
Theory of hydrodynamic escape from close-in exoplanets II
- 12:30 pm - 2:30 pm Lunch and free time
- 2:30 pm Contribution #3 by **Cyril Gapp**
The transmission spectrum of the Ultra-Hot Jupiter WASP-121b with JWST/NIRSpec G395H reveals strong atmospheric signals and limb asymmetries
- 2:45 pm Contribution #4 by **Christina Schoettler**
Can the Kepler Dichotomy be explained by dynamical interactions in young star clusters?
- 3:00 pm Lecture #2 by **Aldo Bonomo**
Bayesian Inference through MCMC and Nested Sampling techniques
- 4:00 pm Coffee break
- 4:30 pm Lecture #3 by **Courtney Dressing**
Highlights from the K2 and TESS Missions
- 5:30 pm Lecture #2 by **Eric Ford**
Transit Timing Variations
- 7:30 pm Dinner and free time

Wednesday, May 24

- 9:30 am Lecture #3 by **James Owen**
Direct observations of escape from exoplanets and what they tell us
- 10:00 am Lecture #4 by **Courtney Dressing**
Demographic Trends in Planet Occurrence Rates
- 10:30 am Coffee break
- 11:30 am Lecture #4 by **Eric Ford**
Near-resonant multi-planet systems
- 12:30 pm Lecture #3 by **Laura Kreidberg**
What are exoplanet atmospheres made of?
- 1:30 pm - 2:50 pm Lunch and free time
- 3:00 pm - 7:30 pm Tour of the Amalfi coast:
 - Visit of Ravello and its Villas
- 7:30 pm - 10:30 pm Social dinner

Thursday, May 25

- 9:00 am Lecture #4 by **Laura Kreidberg**
What kind of clouds and hazes do exoplanets have?
- 10:00 am Lecture #4 by **James Owen**
Impact of escape on exoplanet evolution
- 11:00 am Coffee break
- 11:30 am Lecture #3 by **Aldo Bonomo**
Determination of stellar parameters for accurate (and precise) planet masses and radii
- 12:30 pm - 2:30 pm Lunch and free time
- 2:30 pm Contribution #5 by **Simone Hagey**
Disentangling the Sources of Secular Trends in Exoplanet Orbits
- 2:45 pm Contribution #6 by **Lorenzo Mugnai**
ExoSim 2. The new time-domain simulator applied to the Ariel space mission
- 3:00 pm Lecture #5 by **Courtney Dressing**
The Compositions and Interior Structures of Exoplanets
- 4:00 pm Coffee break
- 4:30 pm Lecture #5 by **Eric Ford**
Long-term evolution of multi-planet systems
- 5:30 pm Lecture #5 by **Laura Kreidberg**
What are the climates of exoplanets like?
- 7:30 pm Dinner and free time

Friday, May 26

- 9:00 am Lecture #4 by **Aldo Bonomo**
Impact of stellar magnetic activity on planet parameters and modeling/mitigation techniques
- 10:00 am Lecture #6 by **Courtney Dressing**
Future Goals and Opportunities
- 11:00 am Coffee break
- 11:30 am Lecture #6 by **Eric Ford**
Formation of multi-planet systems
- 12:30 pm - 2:30 pm Lunch and free time
- 2:30 pm Contribution #7 by **Elyar Sedaghati**
Constraining planet formation theories from the Rossiter McLaughlin measurements for warm giant exoplanets
- 2:45 pm Contribution #8 by **Larissa Palethorpe**
Delving further into the radius valley through the characterisation of a sub-Neptune
- 3:00 pm Lecture #6 by **Laura Kreidberg**
Future prospects and the path to biosignatures
- 4:00 pm Coffee break
- 4:30 pm Lecture #5 by **James Owen**
Open questions and future directions
- 5:30 pm Lecture #5 by **Aldo Bonomo**
Challenges and future prospects for accurate/precise determination of planet parameters
- 7:30 pm Dinner and free time