Lake Como School of Advanced Studies

BRAVE NEW WORLDS II
Understanding the planets of other stars

Villa del Grumello
Como - Italy
12-16 June 2023

Every day in our Galaxy hosts at least one planetary companion, but our Milky Way is crowded with billions of planets!

But, the Solar System does not appear to be the paradigm in our Galaxy, but only one of the many possible configurations we are seeing out there. There include planets populating a revolution in less than one day, as well as planets orbiting two stars or moving on trajectories so eccentric as to resemble comets. Some of them are freezing cold, some are so hot that their surface is molten. How do we compare from here?

The school aims at providing a comprehensive view of the nature of exoplanets, through an integrated approach coupling observations, data analysis and interpretation. Finding out why are these new worlds as they are is one of the key challenges of modern astrophysics.

LECTURES
- Ahmed Al-Amrani (UCL)
  - Binary anomalies in compact exoplanetary systems
- David Deming (NASA Ames Research Center)
  - Formation of the planets in the solar system
- Massimo Ianna (INAF)
  - How do we understand our solar system?
- Miguel Angel Granada (Barcelona)
  - Exoplanetary dusty disks
- Peter Ballester (Granada)
  - Detection of exoplanets using the James Webb Space Telescope
- Neela Kunjachchi (NASA Goddard Space Flight Center)
  - Detection of exoplanetary systems
- Olmo Moro (INAF - Osservatorio di Palermo)
  - The exoplanet population
- Jonathan Temple (UCL)
  - Understanding exoplanet systems
- Giovanna Tinetti (UCL)
  - The evolution of exoplanet atmospheres
- Matthias Rieke (NASA)
  - Connecting the light of planets in our Galaxy
- Angelo Terrasi (INAF - Osservatorio di Arcetri)
  - Mapping exoplanetary data: a hands-on approach
- whisky (Institute for artificial intelligence and exoplanets)

ORGANIZING COMMITTEE
- Cosma Ciardi (UCL)
- Upa Melitena (Director, vasilia)
- Matteo Civano (University of Florence)
- Angela Terrasi (INAF - Osservatorio di Arcetri)
- Michele Zuccarello (University of Siena, Presidenta Hayati, Other Portfolios (Hayatia))

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REGISTRATION FEE: € 400.00
Financial support available in limited amount for developing countries

APPLICATION AND INFO
http://lac2023.lakeschools.com
Organising Committee

- Giovanna Tinetti (Director-UCL)
- Ugo Moschella (Director-Insubria)
- Monica Colpi, Massimo Dotti (Bicocca)
- Sergio Cacciatori, Vittorio Gorini, Francesco Haardt, Oliver Plattella (Insubria)

Only nine planets were known before the nineties, namely the ones orbiting our favourite star, the Sun, which then included Pluto. Thirty years later, we have «lost» Pluto but we have gained 2000+ planets in orbit around other stars. Current statistical estimates indicate that, on average, every star in our Galaxy hosts at least one planetary companion, i.e. our Milky Way is crowded with billions of planets!

The most revolutionary aspect of this young field is the discovery that the Solar System does not appear to be the paradigm in our Galaxy, but rather one of the many possible configurations we are seeing out there. These include planets completing a revolution in less than one day, as well as planets orbiting two stars or moving on trajectories so eccentric as to resemble comets. Some of them are freezing cold, some are so hot that their surface is molten. How do we progress from here?

The school is aimed at providing a comprehensive view of the nature of exoplanets, through an integrated approach covering observations, data analysis and interpretation.

Finding out why are these new worlds as they are is one of the key challenges of modern astrophysics.
Lecturers

Ahmed Al-Refaie (UCL) Numerical models to interpret exoplanetary data
Beth Biller (University of Edinburgh) Imaging extrasolar worlds
Masahiro Ikoma (NAOJ) How do planets form and evolve
Miguel Angel Granada (Barcelona) From the Only World to the Infinite Planetary Systems: Copernicus, Kepler, Bruno
Pierre Olivier Lagage (CEA) Exoplanets with the James Webb Space Telescope
Malena Rice (MIT/Yale) Orbital architectures of Planetary Systems
Giusi Micela (INAF – Osservatorio di Palermo) The stellar environment
Jonathan Tennyson (UCL) Molecular spectroscopy for exoplanets
Giovanna Tinetti (UCL) Decoding the light of planets in our galaxy
Angelos Tsiaras (INAF – Osservatorio di Arcetri) Analysis of exoplanetary data: a hands-on approach
Ingo Waldmann (UCL) Artificial Intelligence and exoplanets
Protetto: Lectures Slides

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### Program

**Lake Erie School of Advanced Studies**

**BIGHT NEW WORLDS II**

#### Program Schedule

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<thead>
<tr>
<th>Time</th>
<th>Speaker/Title</th>
<th>Location</th>
<th>Details</th>
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<tbody>
<tr>
<td>9:00 AM</td>
<td>Registration</td>
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<tr>
<td>9:30 AM</td>
<td>Welcome, Introduction</td>
<td>Inside conference hall</td>
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<tr>
<td>10:00 AM</td>
<td>Session 1: Lake Ecosystems</td>
<td>Inside conference hall</td>
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<tr>
<td>12:00 PM</td>
<td>Lunch</td>
<td>Inside conference hall</td>
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<tr>
<td>2:00 PM</td>
<td>Session 2: Waterfront Ecosystems</td>
<td>Inside conference hall</td>
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<tr>
<td>5:00 PM</td>
<td>Closing Remarks</td>
<td>Inside conference hall</td>
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#### Faculty List

- **Joel Tansley**, University of Michigan, Lake Ecosystems.
- **Donald Macdonald**, University of Cincinnati, Waterfront Ecosystems.

**Venue:** Erie, Pennsylvania (inside conference hall)

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**Friday, June 30**

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<th>Time</th>
<th>Speaker/Title</th>
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<td>9:00 AM</td>
<td>Welcome, Introduction</td>
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<tr>
<td>9:30 AM</td>
<td>Session 3: Offshore Ecosystems</td>
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<td>12:00 PM</td>
<td>Lunch</td>
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<td>2:00 PM</td>
<td>Session 4: Artificial Intelligence</td>
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<td>5:00 PM</td>
<td>Closing Remarks</td>
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**Speaker Information**

- **Joel Tansley**, University of Michigan, Lake Ecosystems.
- **Donald Macdonald**, University of Cincinnati, Waterfront Ecosystems.
- **Margaret A. Tomlinson**, University of Michigan, Artificial Intelligence.
Contacts

Lake Como School of Advanced Studies

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