

Norwegian Olympiad on Astronomy and Astrophysics

Workshop's schedule
20th - 24th March 2023

Information:

Norsk astronomiolympiade: <https://www.mn.uio.no/astro/tjenester/publikum/ol-astronomi-og-astrofysikk/>

([1st round exam](#), [2nd round exam](#), [list of actual finalists](#))

On Friday March 24th the students will take the final test. **The top 5 students will be the winners of the national olympiad and finalists at the 16th IOAA 2023 – Chorzów, Poland (20th - 30th August 2023).**

Awards

The top five students will receive the following prizes: 1 copy of [The world at night](#), diploma and flowers.

The finalists will receive a diploma of participation and 1 copy of [Astrophysics for Young People in Hurry](#).

General information

For those staying at the hotel (7 students):

- **Twin rooms by the Thon Hotel Ullevål Stadion**, [Sognsveien 77C, 0855 Oslo](#) . For more info visit the website: <https://www.thonhotels.no/hoteller/norge/oslo/thon-hotel-ullevaal-stadion/>
- **Meals:** the Astro-OL will provide the students lunches and dinners (breakfast included in the hotel rate for those staying at the hotel). There is no need for the students to collect and send us receipts of their expenses for meals.
- **Transportation:** travel costs will be reimbursed upon presentation of receipts and the ticket itself (e.i. boarding pass for flights, train ticket etc..). On Friday 24.03 students will be asked to fill in a claim form for reimbursements (travel costs mainly).

Subjects of the course:

Adapted from IOAA Syllabus: <http://www.ioaastrophysics.org/syllabus/>

Each lecture/presentation at the training will be shared among the students by email.

What students need to bring along:

- For the classes, the students need to bring a calculator and their laptop (the latter is not necessary, as you could work in small groups. It is up to the student).
- For the observation evening, the students need to bring: warm clothes and shoes for staying outside in the evening below zero degree and snow, headlamps, a thermos for hot chocolate, tea.

All the classes will take place at:

Institutt for teoretisk astrofysikk (ITA)

Svein Rosselands hus ([kart](#))

Sem Sælands vei 13

0371 OSLO

Rooms: Auditoriet (room 209), Peisestua (room 304) and RoCS meeting room (K09).

WiFi: Conferences / Password: Pleiadene

Contact info:

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- Reetika Joshi, reetika.joshi@astro.uio.no

Monday 20/3 Svein Rosselands hus**Theme: Welcome at ITA / Competing at the IOAA**

9:00 – 9:20 Peisestua (room 304)	Welcome message / Norsk Astronomiolympiade	Per Barth Lilje (ITA) Martina D'Angelo (ITA)
9:20 – 10:00 Zoom	IOAA: from leading the Brazilian delegation to organizing IOAA in Brazil and promoting IOAA in Norway	Thais Mothe-Diniz (NTNU)
10:00 - 10:15	<i>15 min break</i>	
10:15 – 11:00 Peisestua	IOAA 2022: a personal experience IOAA 2019: a personal experience	Karoline Ravlo-Losvik (3. år VGS) Iver Oknes (Fysikk og Astronomi/ UiO)
11:00 – 11:30 Zoom	Working with space after IOAA as a student	Đorđe Veljkovic (NTNU)
11:30 – 12:00 Peisestua	Hva lærer man ved å studere astrofysikk på ITA	Hans Arnold Winther (ITA)
12:00 – 13:00	<i>Lunch break (Peisestua)</i>	
13:00 – 14:00 Peisestua	Training session: solving questions and various exercises	Herman Sletmoen (ITA) Reetika Joshi (ITA, ROCS)
14:00 – 14:15	<i>15 min break (we move to Auditoriet 209)</i>	
14:15 – 15:30 Auditoriet 209	Training session: solving questions and various exercises	Herman Sletmoen (ITA) Reetika Joshi (ITA, ROCS)
15:30 - 15:45	<i>15 min break</i>	
15:45 – 16:30 Auditoriet 209	Fra mytologi til vitenskap	Christophe Kristian Blomsen (ITA)
16:45 – 18:00 Frederikke spiseri	<i>Dinner + games at Union371</i>	

Tuesday 21/3 Svein Rosselands hus**Theme: the Universe**

09:00 – 10:45 Peisestua (room 304)	Introduction to Cosmology	Øystein Elgarøy (ITA)
10:45 - 11:00	<i>15 min break</i>	
11:00 – 12:15 Peisestua (room 304)	Introduction to Cosmology (Part II)	Hans Arnold Winther (ITA)
12:15 – 13:00	<i>Lunch break (RoCS basement K09)</i>	
13:00 – 13:30 RoCS K09	Svarte hull fargelegges med gravitasjonsbølger	Øyvind Christiansen (ITA)
13:30 – 14:00 RoCS K09	Mørk materie	Renate Mauland-Hus (ITA)
14:00 - 14:15	<i>15 min break</i>	
14:15 – 15:00 RoCS K09	GalaxyZoo	Davide Decataldo (ITA)
15:00 - 15:15	<i>15 min break</i>	
15:15 – 17:15 RoCS K09	Training session: solving questions and various exercises	Herman Sletmoen (ITA) Farbod Hassani (ITA)
17:30 - Vilhelm Bjerknes´ hus	<i>Popvit-kveld med konsert med andre realfag-OL</i>	

Wednesday 22/3 Svein Rosselands hus**Theme: Observational Astronomy**

09:00 – 10:15 Auditoriet 209	Telescopes and the sky	Tor Einar Aslesen (NAS)
10:15 - 10:30	<i>15 min break</i>	
10:30 – 11:00 Auditoriet 209	The invisible Universe: astronomy at sub-millimeter wavelengths	Claudia Cicone (ITA)
11:00 - 11:15	<i>15 min break</i>	
11:15 -11:45 Auditoriet 209	Space Astronomy: Euclid	Per Barth Lilje (ITA)
11:45 -12:15 Auditoriet 209	Space Astronomy: Solar Orbiter	Terje Fredvik (RoCS, ITA)
12:15 – 13:00	<i>Lunch break (Auditoriet 209)</i>	
13:00 - 14:00 Auditoriet 209	Interactive talk/exercise: What can we learn from an exoplanet light curve?	Håkon Dahle (ITA)
14:00 - 14:15	<i>15 min break (we move to RoCS K09)</i>	
14:15 - 16:30 RoCS K09	Distance measurements and the distance ladder (talk+exercise with redshift measurement) Observational astronomy: - instrumentation (incl. JWST, Hubble...) - constellations and deep-sky objects	Håkon Dahle (ITA)
17:00 - 18:30	<i>Dinner</i>	
18:30 - 19:30	<i>Alt. A: 15 min T-bane to Sognsvann + 10 min walk Alt. B: 32 min T-bane to Grorud + 20 min walk to Steinbruvannet</i>	
20:00 - 22:00 circa	Naked-eye observations: learning the sky, variable star observations Observing program: ~4-5 groups(?) circulate between 4-5 telescopes and ~2 binoculars ?	Håkon Dahle (ITA) Victor Hilbertz (Universum Panton / UiO)

	<p>- Naked-eye observations: learning the sky</p> <ol style="list-style-type: none"> 1. DSLR astrophotography through telescopes 2. Finding objects through a telescope 	
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Thursday 23/3 Svein Rosselands hus		
Tema: Solar and stellar properties		
09:00 – 10:45 RoCS K09	Solar/stellar structure and stellar evolution	Luc Rouppe (ITA, RoCS)
10:45 – 11:00	<i>15 min break</i>	
11:00 – 12:15 RoCS K09	Photometry / HR diagram	Tiago Pereira (ITA, RoCS)
12:15 – 13:00	<i>Lunch break K09</i>	
13:00 – 14:00 RoCS K09	Stellar classes / Spectral lines	Tiago Pereira (ITA, RoCS)
14:00 - 14:15	<i>15 min break</i>	
14:15 - 15:00 RoCS K09	På jakt etter eksoplaneter	Eilif Sommer Øyre (ITA, RoCS) Mats Ola Sand (ITA, RoCS)
15:00 - 15:15	<i>15 min break</i>	
15:15 - 17:15 RoCS K09	Training session: solving questions and various exercises	Sneha Pandit (ITA, RoCS) Reetika Joshi (ITA, RoCS)
17:30 - <i>Vilhelm Bjerknes' hus</i>	<i>MN infokveld med middag</i>	

Friday 24/3 Svein Rosselands hus

09:00 - 11:30 RoCS K09	Final exams	Reetika Joshi (ITA,RoCS) Herman Sletmoen (ITA)
11:45 - 12:45	<i>Lunch break (RoCS K09)</i>	
13:00 - 13:30 Peisestua 304	"Astronomy at school" Informal chat with the students	Martina D'Angelo (ITA)
13:30 - 13:45 Peisestua 304	Summary and final remarks / End of the training	Norsk Astronomiolympiade Committee
14:30 - 15:30 <i>Vilhelm Bjerknes' hus</i>	<i>Realfag OL: Closing Ceremony /premiation with cake and coffee</i>	