INTERNATIONAL SPACE SCIENCE INSTITUTE

Workshop on

"Unsolved Mysteries of the Uranian System"

13 – 17 June 2025

Monday, 13 October 2025		
Time	**Topic**	**Chair(s)**
10:15-10:45	Registration ISSI, Hallerstrasse 6, 1st floor, Badges	
10:45-11:15	Welcome	Rumi Nakamura (ISSI) & Workshop Conveners
11:15-11:30	*Coffee Break*	
11:30-13:00	**Rings & small satellites** • ***Matt Hedman (U. Idaho):*** *Architecture and dynamics of the inner ring-moon system* • ***Richard Jerousek (U. Central Florida):*** *Ring particle sizes and microstructure* • ***Shawn Brooks (JPL):*** *Interactions between rings/small moons and their environment* • ***Tracy Becker (SwRI):*** *Composition and long-term evolution of inner ring-moon system* • ***Tilmann Denk (DLR):*** *Outer irregular moons*	Matt Hedman (U. Idaho)
13:00-14:30	*Lunch*	
14:30-16:00	**Magnetosphere** • ***Adam Masters (ICL):*** *Magnetosphere-ionosphere-thermosphere coupling* • ***Carol Paty (U. Oregon):*** *Solar wind interaction and magnetospheric dynamics* • ***Gina DiBraccio (NASA/GSFC):*** *Magnetotail and magnetospheric dynamics* • ***Rob Ebert (SwRI):*** *Low-energy plasma* • ***Ian Cohen (JHU/APL):*** *High-energy particles and radiation belts* • ***Tom Nordheim (JHU/APL):*** *Moon-magnetosphere interactions*	Ian Cohen (JHU/APL)

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ISSI Workshop Programme, 13–17 October 2025

Monday, 13 October 2025 *(continued)*		
16:00-16:30	*Coffee Break*	
16:30-18:00	**Middle atmosphere** • ***Emma Dahl (Caltech) & Ricardo Hueso (UPV/EHU):*** *Uranus' observed weather-layer circulation* • ***Pat Irwin (U. Oxford) & James Sinclair (JPL):*** *Current understanding of Uranus' cloud and aerosol layers* • ***Arrate Antuñano (UPV/EHU) & Amy Simon (NASA/GSFC):*** *Measured and inferred cloud top composition and chemistry*	Amy Simon (NASA/GSFC)
18:00	*Welcome Reception - Hallerstrasse 6, 1st floor*	

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Tuesday, 14 October 2025

Time	Topic	Chair(s)
10:00	Arrival & Overview	
10:15-11:45	**Upper atmosphere incl. M-I coupling** • ***Tom Stallard (Northumbria U.):*** *Long-term thermospheric temperatures changes and infrared emissions* • ***Laurent Lamy (LIRA/LAM):*** *auroral radio and UV emissions and magnetospheric dynamics* • ***Corentin Louis (LIRA):*** *Magnetosphere-ionosphere-satellite coupling* • ***Karen Aplin (U. Bristol):*** *particle precipitation and effects on atmospheric electrical properties, incl. cloud/haze formation*	Ian Cohen (JHU/APL)
11:45-12:00	*Coffee Break*	
12:00-13:30	**Origin and evolution** • ***Linn Eriksson (Stony Brook U.):*** *How physical conditions in the proto-planetary disk influenced Uranus' formation* • ***Sho Shibata (Rice U.):*** *How Uranus accreted material from the proto-planetary disk* • ***Olivier Moussis (SwRI):*** *How chemical conditions in the proto-planetary disk influenced Uranus' formation* • ***Kathy Mandt (NASA/GSFC):*** *Constraining Uranus' origins and evolution using isotopes and noble gases* • ***Robin Canup (SwRI):*** *The formation of the Uranian satellite system* • ***Christian Reinhardt (U. Zurich):*** *The role of giant impacts and their alternatives* • ***Ravit Helled (U. Zurich):*** *Formation models of Uranus and the key challenges*	Ravit Helled (U. Zurich)
13:30-15:00	*Lunch*	

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Tuesday, 14 October 2025 *(continued)*		
15:00-16:30	**Classical satellites surfaces** • ***Chloe Beddingfield (JHU/APL):*** *Geological overview of the moons* • ***Alice Lucchetti (INAF/OAPD):*** *Craters and mass wasting features* • ***Erin Leonard (JPL):*** *Tectonics and mapping* • ***Lynnae Quick (NASA/GSFC):*** *Cryovolcanism* • ***Richard Cartwright (JHU/APL):*** *Surface compositions* • ***Stephanie Menten (JHU/APL):*** *Volatile transport* •	Chloe Beddingfield (JHU/APL) & Alice Lucchetti (INAF/OAPD)
16:30-17:00	*Coffee Break*	
17:00-18:30	**Interior and deep atmosphere** • ***Ravit Helled (U. Zurich):*** *Non-adiabatic models of Uranus* • ***Luca Morf (U. Zurich):*** *Updates on Uranus interior modeling* • ***Saburo Howard (U. Zurich):*** *Uranus’ evolution including hydrogen-water immiscibility, and Uranus flux and albedo* • ***Nadine Nettelmann (U. Rostock):*** *Uranus' interior, water cloud level, and evolution in comparison to Neptune*	Ravit Helled (U. Zurich)

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Wednesday, 15 October 2025

Time	Topic	Chair(s)
10:00-11:30	**Classical satellites interiors** • ***Julie Castillo-Rogez (JPL):*** *Thermal evolution of the uranian moons as a function of the origin of their materials* • ***Yasuhito Sekine (Tokyo Inst. Tech):*** *Ocean composition and habitability* • ***Peter Higgins (Harvard U.):*** *Quantifying habitability in icy worlds' oceans and what we need to look for* • ***Doug Hemingway (U. Texas, Austin):*** *Interior modeling based on the combination of shape, gravity, and rotation state observations* • ***Paolo Tortora (U. Bologna):*** *Gravity science via ground-based and inter-satellite radio tracking*	Chloe Beddingfield (JHU/APL) & Alice Lucchetti (INAF/OAPD)
11:30-11:45	*Coffee Break*	
11:45-13:15	**Dynamo & magnetic field** • ***Hao Cao (UCLA):*** *Uranus' dynamo and interior* • ***Corey Cochrane (JPL):*** *Magnetic induction at the Uranian moons*	Ian Cohen (JHU/APL)
13:15-15:00	*Lunch*	
15:00-16:00	**Overview Review & Book Coordination Discussion**	Rumi Nakamura (ISSI) & Workshop Conveners
16:00-16:30	*Coffee Break*	
16:30-18:00	**Chapter Splinter Discussion #1**	
18:30 (tbc)	*Dinner at restaurant "Kornhauskeller" (organised by ISSI)*	

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Thursday, 16 October 2025

Time	Topic	Chair(s)
10:00-11:30	**Conveners & Book Leaders Meeting**	Rumi Nakamura (ISSI) & Workshop Conveners
11:30-12:00	**Plenary Book Coordination**	Workshop Conveners & Chapter Leads
12:00-12:15	*Coffee Break*	
12:15-13:30	**Chapter Splinter Discussion #2**	Chapter Leads
13:30-15:00	*Lunch*	
15:00-16:30	**Chapter Splinter Discussion #3**	Chapter Leads
16:30-17:00	*Coffee Break*	
17:00-18:30	**Splinter results presentations & Discussions**	Workshop Conveners & Chapter Leads

Friday, 17 October 2025

Time	Topic	Chair(s)
9.15-11:00	Discussions on “Introduction” & “Summary” chapters Meeting Conclusion	Workshop Conveners
11:00	**Farewell**	Workshop Conveners & Rumi Nakamura (ISSI)

Last update: 3 October 2025