



# OUTER PLANET MOON-MAGNETOSPHERE INTERACTION

31 March - 4 April 2025  
University of Cologne, Germany



Welcome !



# Structure of Workshop

## Monday

Monday					
13:30	Welcome			Saur	
14:00	247	Moon-Magnetosphere Interactions: A Tutorial Review	Fran Bagenal	Tutorial	30 moon plasma
14:30	222	The length of the Io footprint: Spectral characterization using Juno-UVS	Vincent Hue	Oral	15 moon farfield
14:45	223	Monitoring of Jupiter's magnetosphere with the moon-induced aurora during the Juno €	Alessandro Moirano	Oral	15 moon farfield
15:00	202	Juno's observations of the vertical and temporal H3+ structure at the auroral footprint o	Alessandro Mura	Oral	15 moon farfield
Coffee Break					
15:45	229	Moon-magnetosphere coupling at Jupiter: insights from JADE-E observations	Jonas RABIA	Oral	15 moon farfield
16:00	237	The Electrodynamical Interaction Between Io and Jupiter: Insights from Juno Observations	Stavros Kotsiaros	Oral	15 moon farfield
16:15	Summary of session and discussion of open-questions: Moon-farfield			Discussion	30 moon farfield
16:45	206	A new view of the Galilean satellites from Juno's close flybys	Jamey Szalay	Tutorial	30 moon plasma
17:15	217	Juno's exploration of Jupiter's inner moons, radiation belts and rings	Scott Bolton	Oral	15 moon plasma

- We use a conference laptop
- Upload talk on sciebo (you received an email)
- Bring talk on memory stick to convener (the latest in break before session)
- Talk lengths:
  - Tutorial 25+5 min
  - Invited 17+3 min
  - Contributed 13+2 min

# Tuesday

## Tuesday

09:00	251	The atmospheres of Jupiter's icy satellites	Philippa Molyneux	Tutorial	30	moon
09:30	238	Constraining the atmosphere of Europa using the Space Telescope Imaging Spectrograph	Michael Velez	Oral	15	moon
09:45	246	Solving the Heat Equation for Europa: Surface Temperature and Heat Flux Modeling	Anne-Cathrine Dott	Oral	15	moon
10:00	236	Ionospheres of icy moons	Marina Galand	Tutorial	30	moon plasma
10:30	192	Ion-neutral chemistry at Ganymede	Arnaud Beth	Oral	15	moon plasma

## Coffee Break

11:15	204	A Tutorial on Numerical Simulations of Moon-Magnetosphere Interactions	Xianzhe Jia	Tutorial	30	moon plasma
11:45	194	Modeling Ganymede's Magnetic Field and Surface Charging Processes	Betty Pei-Chun Tsai	Oral	15	moon plasma
12:00	199	Simulations of energetic ion dropouts during the Juno flyby of Europa	Hans Huybrighs	Oral	15	moon plasma
12:15	Summary of session and discussion of open-questions: Moon-local 1			Discussion	15	moon plasma

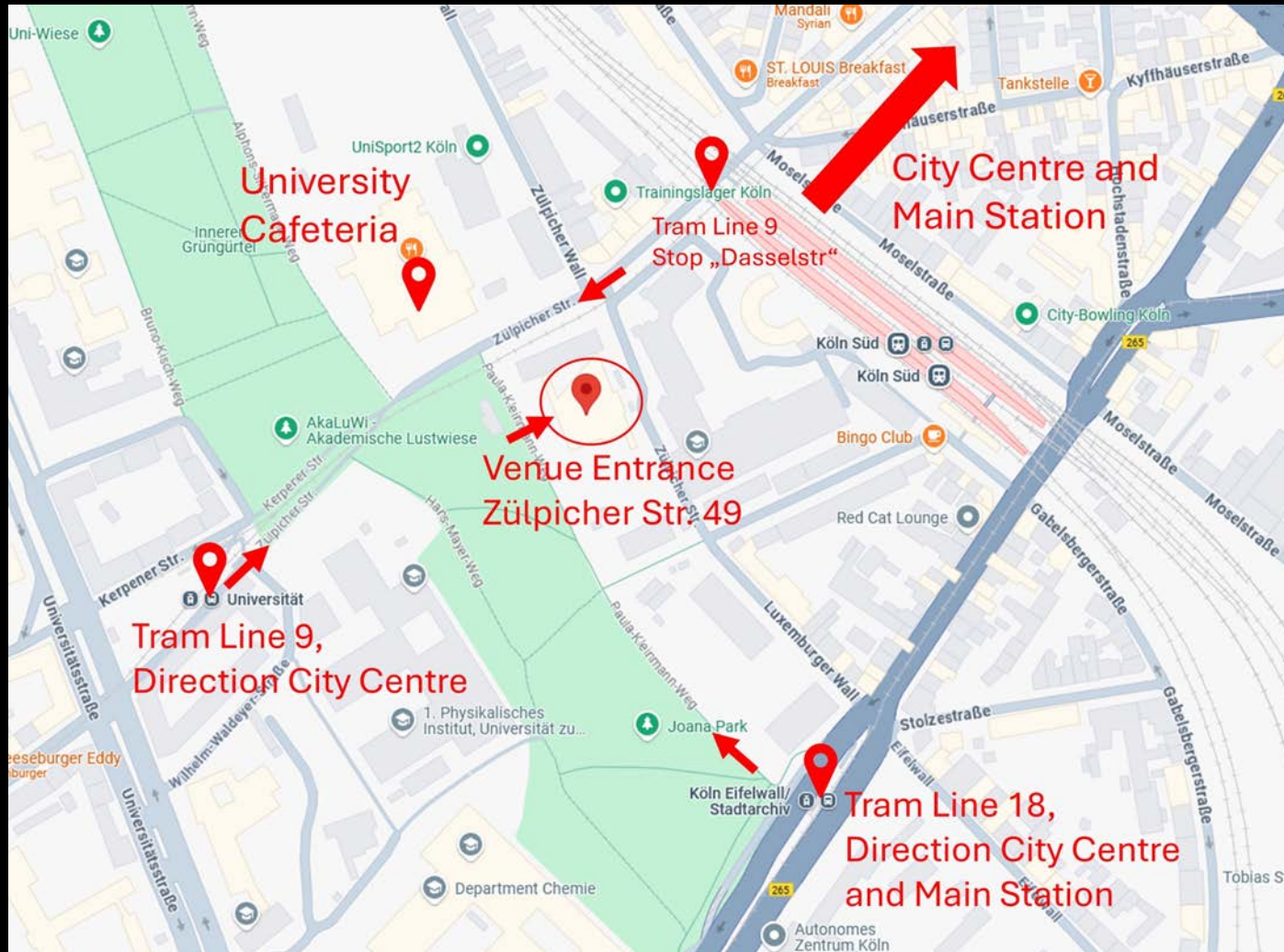
## Lunch

Posters from 14:00-17:00 / Coffee 15:00

16 posters sideways of foyer  
Session Tuesday afternoon, but up all week

# Lunch

- Cafeteria of University:
  - 4 vouchers are in your envelope (for free for you. If you don't use them, we are not billed)
  - Menu can be seen at:  
<https://www.kstw.de/en/food-service/menu/>
  - Location is “Mensa Zülpicher Straße”
- Many restaurants close by





# Wednesday

Wednesday					
09:00	242	Modelling Earth's magnetic field from space - separation of the various source contributi	Nils Olsen	Tutorial	30 induction/Earth
09:30	203	Motionally induced magnetic fields in Earth's oceans	Jakub Velínský	Invited	20 induction/earth
09:50	209	New global conductivity model of the Earth's mantle constrained by the joint inversion of	Alexander Grayver	Oral	15 induction/earth
10:05	224	The inversion of ocean-induced magnetic signals to determine transport and heat	Aaron Hornschild	Invited	20 induction/earth
10:25	250	Investigating the interior of Ganymede, Callisto and Europa with JUICE	Gabriel Tobie	Oral	20 moon interior overview
Coffee Break					
11:15	200	Overview of Magnetic Induction in the Solar System's Icy Moons	Steven Vance	Tutorial	30 induction
11:45	234	Induction and Motional Induction in the Satellite Oceans	Robert Tyler	Oral	15 induction
12:00	214	Magnetic field induced by convective flow in Ganymede's subsurface ocean	Libor Šachl	Oral	15 induction
Lunch until 14:00 followed by an excursion					
18:30 Conference Dinner					

Fokus of Workshop: **Induction at Earth and Icy Satellites**  
(Input Alexander Grayver)

# Social Events

- Afternoon:
  - Museum Ludwig and Chocolate Museum: vouchers in your envelope
  - Sightseeing tours start at 15:00 (be there at 14:50)



## City- and Cathedral Tours

1. Old town and Cathedral's exterior
2. Old town on the trail of the Romans

**Date:** Wednesday, April 2, 2025, 3:00 PM

**Meeting point:** At the „**Kreuzblume**“ in front of  
KölnTourismus  
(opposite the main portal of the Cathedral)

**Duration:** Tour 1 90 minutes

**Duration:** Tour 2 120 minutes



### 3. Cathedral Tour

**Date:** Wednesday, April 2, 2025, 3:00 PM

**Meeting point:** Domforum, Domkloster 3  
(opposite the main portal of the Cathedral, next to the  
„**Kreuzblume**“)

**Notes:** We will meet at 2:50 PM in front of the DOMFORUM. Small  
backpacks and handbags are allowed. Large luggage cannot be  
taken along. There is no storage available at the DOMFORUM.

**Duration:** 90 minutes

# Conference Dinner: Früh am Dom

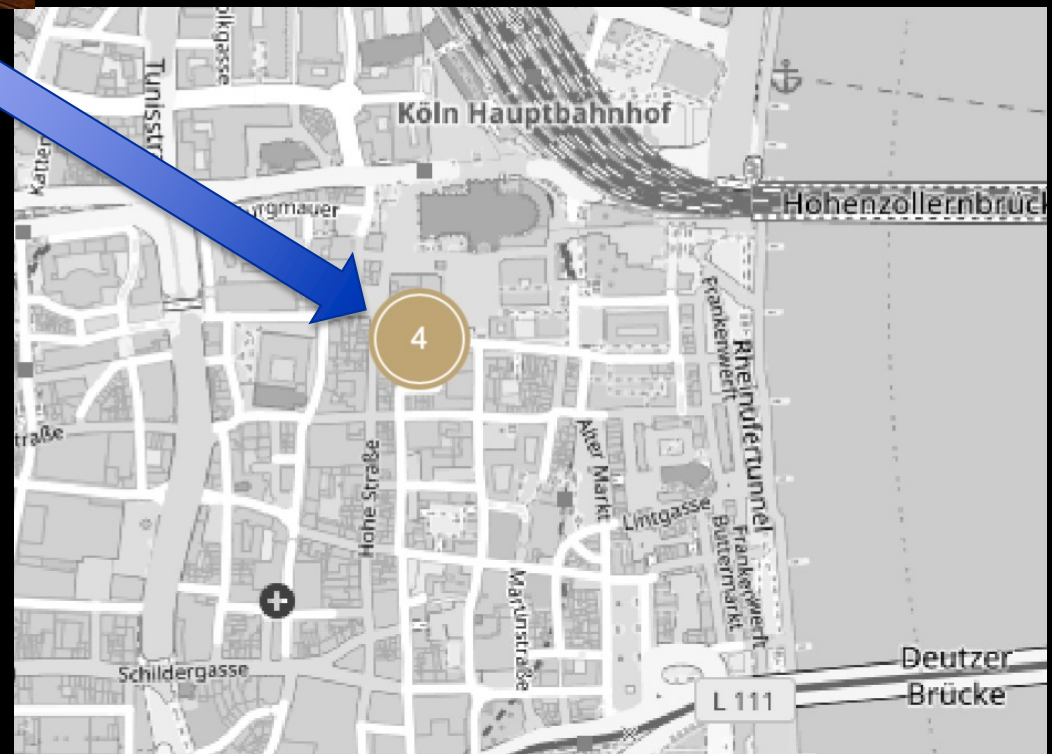
Wednesday 18:30



South of Cathedral

You need to pay yourself.

If you registered for it, please show up.  
Otherwise we pay a fee of 20€ each.



# Thursday

Thursday					
09:00	254	Quantitative Constraints on Europa's Subsurface Ocean using Electromagnetic Induction	Jason Winkenstein	Oral	15 induction
09:15	213	Would magnetic induction effects allow detecting salinity gradients or zonal flows in Eur	Johannes Wicht	Oral	15 induction
09:30	212	Driving zonal flows in Europa's ocean by magnetic induction	Ilse de Langen	Oral	15 induction
09:45	201	Stronger Evidence of a Subsurface Ocean within Callisto from a Multifrequency Investigat	Corey Cochrane; Steve Vance	Oral	15 induction
10:00	244	Induction studies at Io based on observations of its aurora	Lorenz Roth	Invited	20 induction
10:15	253	Can Europa's subsurface ocean be detected by its atmospheric glow?	Stephan Schlegel	Oral	15 induction
10:30		Summary of session and discussion of open questions: Induction		Discussion	30 induction
Coffee Break					
11:30	193	Analyze Io's atmosphere and environment using HST STIS spectral data	Anatol Große-Schware	Oral	15 moon
11:45	252	Ion Pick-up around Io in the Galileo Era	Martin Volwerk	Oral	15 moon plasma
12:00	211	Extended Regions of Energetic Proton Losses around Io: Observations from Five Galileo FI	Sebastian Cervantes	Oral	15 moon plasma
12:15	196	How does Io transfer mass to the Io Plasma Torus? Is there a direct link to volcanic erupti	Darrell Strobel	Oral	15 moon
Lunch 12:30					
14:00	210	Titan's Induced magnetosphere from plasma wave, magnetic field and particle observati	Konstantin Kim	Oral	15 moon plasma
14:15	219	The neutral water torus of Europa	Quentin Nenon	Oral	15 moon/magnetosphere
14:30	231	M-shell and Local Time Variability of the Electron and Magnetic Environments at the Orb	Thomas Le Liboux	Oral	15 moon/magnetosphere
14:45	227	Detection of negative pickup ions from dust orbiting Jupiter	Frederic Allegrini	Oral	15 magnetosphere
15:00		Summary of session and discussion of open-questions: Moon-local 2 & Magnetosphere		Discussion	Moon/magnetosphere
		Discussion next MMI-Meeting		Discussion	
Splinter meetings around 16:00					

Splinter afterwards



# Friday

## Friday

09:00	197	Radial Evolution of Electron Pitch Angle Distributions in the Inner Jovian Magnetosphere	Zhi-Yang LIU	Oral	15	magnetosphere
09:15	245	Characterization of electron beams in Jupiter's middle magnetosphere	June Piasecki	Oral	15	magnetosphere
09:30	207	The Hinge Point of Jupiter's Current Sheet and Its Relation to Main Auroral Emissions	Jiuwen Sun	Oral	15	magnetosphere
09:45	228	Ion composition and pitch angle variations for interchange injection events in Jupiter's magnetosphere	Nicolas André; Marie Devinat	Oral	15	magnetosphere
10:00	243	Magnetic Field measurements by JUICE	Michele Dougherty	Invited	20	mission
10:20	191	The Radio & Plasma Wave Investigation (RPWI) for the JUICE mission	Jan-Erik Wahlund	Oral	15	mission
Coffee Break						
11:05	232	Spacecraft charging during the JUICE lunar gravity assist	Mika Holmberg	Oral	15	mission
11:20	195	Europa Clipper Checkpoint Mars	Haje Korth	Oral	15	mission
11:35	205	New Insights into Magnetospheric Structures and Future Prospects	Zhonghua Yao	Invited	20	mission
11:55		Discussion: Challenges and Preparation for JUICE/CLIPPER/TELESCOPES observations		Discussion		mission/general
12:25		Formal End of Meeting				

## Afternoon Boat Tour

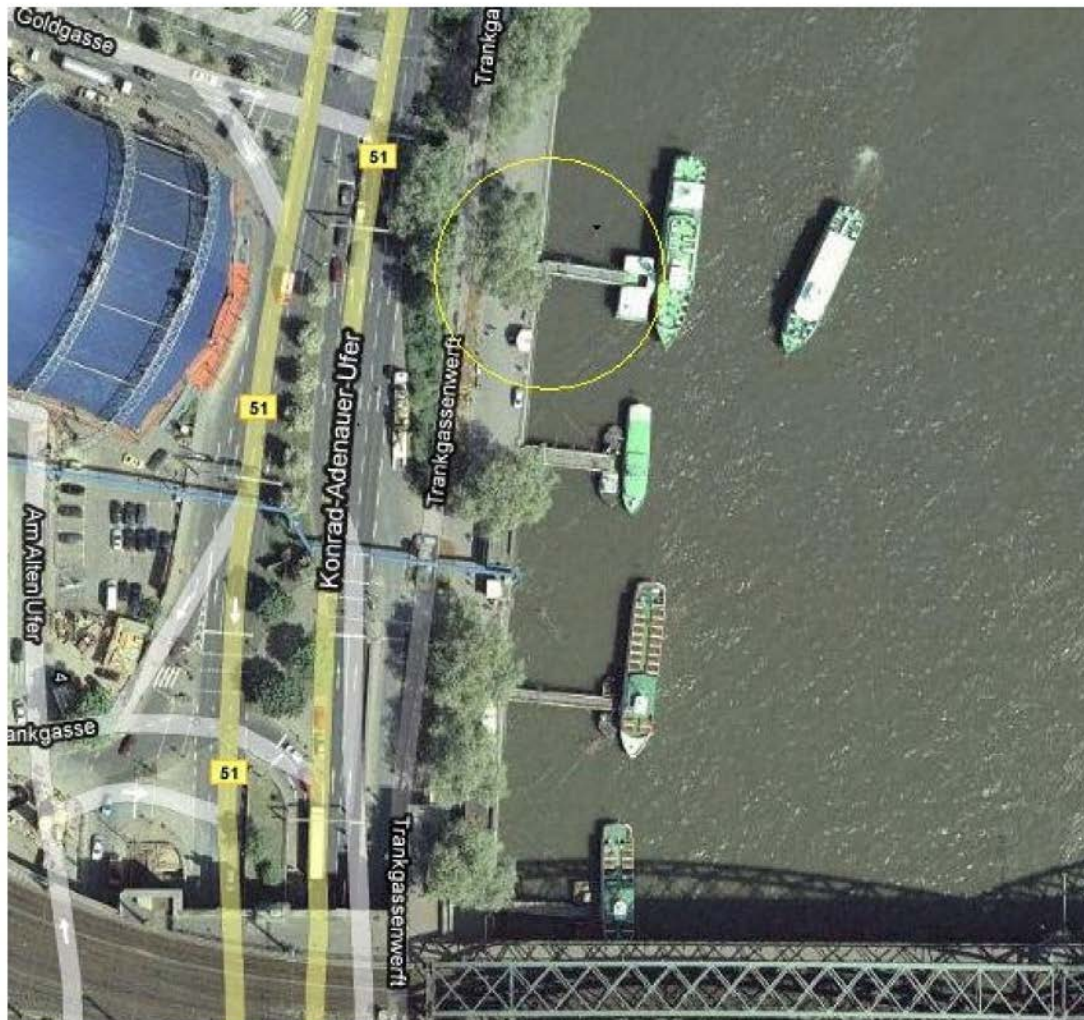
## Skyline Boat Tour (KölnTourist)

**Date:** Friday, April 4, 2025, 3:00 PM

**Meeting point:** Dock 10 below the Musical Dome and Goldgasse, Konrad-Adenauer-Ufer

**Departure:** 3:00 PM

**Duration:** 90 minutes



Anleger 10  
Dock 10

# Wifi

- Wifi:
  - Eduroam
  - Otherwise get in touch with us
- Permission form to make slides available
- Feedback form



# Cologne

- Found by the Romans: Colonia Claudia Ara Agrippinensium (50 A.C)
- Lively history
- Today about 1 Million inhabitants
- University founded 1388
- 40000 students currently
- Next week start of summer semester



# Thanks to

- Local Organizing Committee:
  - Christiane Kuhl, Alexander Wennmacher, Andreas Busse, Alexander Grayver
- External help:
  - Hans Huybrigh, Olivier Witasse
- Financial Support through:



**European Research Council**

Established by the European Commission



**Key Profile Area: Intelligent  
Methods for Earth System Sciences**



# One simple rule!

