

THURSDAY, DEC 1

07:00 Breakfast

09:00 **Jochen Weller (LMU)** **Overview RU-C**
"Large-Scale Structures"
milestone progress summary

09:25 **Caroline Heneka (Heidelberg University)** **Highlight RU-C**
Computer vision for high-redshift
astrophysics and cosmology

09:55 **Ariel Sanchez (MPE)** **Overview CN-4**
"Dark Energy" milestone progress summary

10:15 **Subha Majumdar (Tata Institute, Bombay)** **Highlight CN-4**
New secondary CMB anisotropies,
radio galaxies and non-thermal SZ

10:35 Tea and Coffee Break

11:15 **Dieter Lüst (LMU)** **Overview CN-1**
"Black Holes" milestone progress summary

11:40 **Johannes Buchner (MPE)** **Highlight CN-1**
AGN results from eROSITA

12:00 Lunch Break

13:30 **Klaus Dolag (LMU)** **Overview CN-5**
"Turbulence in the Universe"
milestone progress summary

13:55 **Ludwig Böss (LMU)** **Highlight CN-5**
A spectral cosmic ray model for
cosmological simulations

14:10 **Laura Fabbietti (TUM)** **Overview CN-7**
"Matter under Extreme Conditions"
milestone progress summary

14:35 **Sajad Abbar (MPP)** **Highlight CN-7**
Collective neutrino oscillations in core-collapse
supernovae and neutron star mergers

15:00 **Magnus Mager (CERN)** **Invited Talk**
CMOS technology for sensor applications

15:30 Tea and Coffee Break

16:00 **CLOSING REMARKS/END OF SCIENCE WEEK 2022**

16:30 Bus leaves for Munich Ostbahnhof & Garching Campus

Venue:
Kloster Seeon
Klosterweg 1
83370 Seeon
www.kloster-seeon.de

Contact:
Mail: info@origins-cluster.de
Phone: +49 89 35831-7100

Useful information:

- Parking is free of charge
- Check-in on the day of arrival after 15:00
- Check-out on the day of departure until 11:00

Science Week

Astro-, Bio- & Particle Physics

**THE ANNUAL SCIENCE MEETING OF
THE EXCELLENCE CLUSTER ORIGINS
28 November – 1 December 2022**

Venue:
Kloster Seeon
Klosterweg 1 · 83370 Seeon
www.kloster-seeon.de

More information:
www.origins-cluster.de/scienceweek2022



MONDAY, NOV 28

12:00 Lunch

OPENING AND WELCOME

13:30 Andreas Burkert (LMU) / Stephan Paul (TUM)

CLUSTER HIGHLIGHT TALKS

13:40 Stephan Königstorfer (TUM) **RU-B**
Antihelium nuclei as messengers from the depths of the galaxy

13:55 Annalena Salditt (LMU) **RU-E**
Complete RNA replication cycles in a Hadean microcompartment system

14:10 Jonas Würzinger (TUM) **ODSL**
The search for supersymmetry with ATLAS

14:25 Giulia Rocchetti (ESO) **CN-2**
Long-term presence of liquid water on the surface of exomoons orbiting free-floating planets

14:40 Moritz Fischer (LMU) **CN-3**
How could we probe the angular dependence of dark matter self-interactions?

14:55 Thorsten Naab (MPA) **CN-5**
Advanced numerical models of the thermal and non-thermal properties of the turbulent star forming interstellar medium

15:10 Anthony Hartin (LMU) **C²PAP**
Simulation of non perturbative quantum field theory phenomena

15:25 Coffee, Tea, Posters & AR/VR Demos for Physics Education

ORIGINS PHD AWARDS 2022 – SESSION 1

15:55 Peter Predehl (MPE)
Laudatio to Riccardo Arcodia

16:05 Riccardo Arcodia (MPE)
Accretion onto black holes across the mass scale

16:35 Philipp Reiss (TUM)
In-situ planetary science

17:00 Ulrich Gerland (TUM)
Biophysics 101

17:30 Jochen Kuhn (LMU)
ORIGINS physics education

17:45 SEED MONEY POSTER SESSION & AR/VR DEMOS FOR ORIGINS PHYSICS EDUCATION

18:30 Dinner

20:30 Bruno Leibundgut (ESO)
After dinner talk – ESO's future plans

21:10 Socialising and bowling in Klosterstüberl bar

Chair: S. Paul

Chair: A. Burkert

TUESDAY, NOV 29

07:00 Breakfast

09:00 Eric Emsellem (ESO) **Overview RU-D**
"Galaxies, Stars and Planets" milestone progress summary

09:25 Amelia Bayo (ESO) **Highlight RU-D**
Combining simulations, observations and instrumentation to understand star and planet formation

09:50 Barbara Ercolano (LMU) **Overview CN-2**
"Planets and other Habitats" milestone progress summary

10:15 Jonathan Tennyson (UCL) **Highlight CN-2**
Twinkle: a mission to deliver large, structured extrasolar and solar system surveys

10:45 Coffee, Tea & AR/VR Presentation VR Lab

11:15 Roland Riek (ETH)
ETH Consortium

11:45 Don Dingwell (LMU), Yan Lavallée (LMU)
Geoscience LMU

12:30 Lunch Break

ORIGINS PHD AWARDS 2022 – SESSION 2

14:15 Herrmann Gaub (LMU)
Laudatio to Alan Ianeselli

14:25 Alan Ianeselli (LMU)
Hadean water-dew cycles drive the evolution of DNA and protocells

14:55 Dieter Braun (LMU) **Overview RU-E**
"Prebiotic Molecules and Life" milestone progress summary

15:15 Petra Schwille (MPIB) **Highlight RU-E**
Life as a matter of function

15:30 Erwin Frey (LMU) **Highlight RU-E**
The time complexity of self-assembly

15:45 Coffee, Tea & AR/VR Presentation VR Lab

16:10 Erwin Frey (LMU) **Overview CN-8**
"Emergence and Non-Equilibrium" milestone progress summary

16:35 Steffen Rulands (LMU) **Highlight CN-8**
Self-organization across spatial scales

16:50 ORIGINS 2 Steering Committee Talk & Open-End Brainstorming

18:30 Dinner

20:30 Socialising in Klosterstüberl bar:
• Gaming "AEON" emergence of life board game
• Bowling

Chair: J. Weiller

Chair: K. Heng

Chair: U. Gerland

WEDNESDAY, NOV 30

07:00 Breakfast

09:00 Thomas Kuhr (LMU) **Overview RU-A**
"Fundamental Particles & Forces" milestone progress summary

09:25 Ante Bilandzic (TUM) **Highlight RU-A**
Properties of quark-gluon plasma with heavy-ion collisions

09:55 Mathias Garny (TUM) **Overview CN-3**
"Dark Matter" milestone progress summary

10:20 Henrique Rubira (TUM) **Highlight CN-3**
Learning about particle physics with the LSS of the Universe

10:45 Coffee, Tea & AR/VR Presentation VR Lab

11:15 Andreas Weiler (TUM) **Overview RU-B**
"Particles and the Cosmos" milestone progress summary

11:40 Christoph Wiesinger (TUM) **Highlight RU-B**
Latest results from KATRIN on the neutrino mass and beyond

12:00 Frank Jenko (IPP) **Overview CN-6**
"Cosmic Accelerators" milestone progress summary

12:15 Chiara Bellenghi (TUM) **Highlight CN-6**
Evidence for neutrino emission from NGC 1068

12:30 Lunch Break

14:15 Eleonora Bianchi (Vera Rubin Fellow)
Complex carbon chains in solar system precursors

14:35 Alexander Ruf (ORIGINS Research Fellow)
Complex networks in astrochemistry

14:55 Karan Molaverdikhani (LMU)
Exoplanet astrochemistry questions arising with JWST

ANNUAL GENERAL ASSEMBLY OF ALL CLUSTER MEMBERS

15:15 ORIGINS summary (Andreas Burkert/Stephan Paul)

15:30 Administration summary (Ina Haneburger, Alice Smith-Gicklhorn, Odele Straub, Stefan Waldenmaier)

16:15 Tea and Coffee Break

16:45 IDSL summary (Dieter Braun)

17:00 ODSL summary (Lukas Heinrich)

17:15 LRSM summary (Martin Losekamm)

17:30 C²PAP summary (Klaus Dolag)

17:45 MIAPbP summary (Andreas Weiler)

18:00 Group Photo

18:30 Dinner

20:30 Socialising and Bowling in Klosterstüberl bar

Chair: N. Brambilla

Chair: E. Resconi

Chair: B. Ercolano