



# SPP1833

Building a  
Habitable Earth

## PROGRAMME

Final General Meeting 2023 - Köln  
SPP 1833 "Building a Habitable Earth"

### Monday, March 6th:

14.00-14.20 Carsten Münker, Köln: Introductory remarks and update on SPP activities

#### *Block I: Archean Processes*

14.20-14.40 Annika Dziggel, Bochum: Terrane Spotting – testing models for the evolution of Earth's first continents

14.40-15.00 Elis Hoffmann, Berlin: Deducing Eoarchean geodynamic processes using multiple sulfur isotopes

15.00-15.20 Deon J. van Rensburg, Jena: Partielle konvektionsbedingte Umwälzung im Barberton Grünsteingürtel: Die Verbindung zwischen tiefen Krusten-Mantel- und Oberflächenprozessen mittels integrierter sedimentärer und struktureller Analyse der syntektonischen Moodies-Gruppe

15.20-15.40 Sebastian Reimann, Jena: The role of early Archean Terrestrial Environments in Weathering, Sediment Transport, and the Colonization of Land

15.40-16.00 Boris Kaus, Mainz: Geodynamic modelling of the early Earth

16.00-16.30 *Coffee break and Poster Session*

#### *Block II: Early Oceans*

16.30-16.50 Inga Köhler, Ettlingen: Origin of coastal facies Banded Iron Formation (Barberton Greenstone Belt 3.2 Ga)

16.50-17.10 Ashley N. Martin, Bochum: Stromatolites as archives for metal mobilization and early life metabolisms? Uranium and Mo isotope studies of modern and Archean stromatolites and carbonates.

17.10-17.30 Andreas Pack, Göttingen: Triple oxygen isotopes of chemical sediments - insights from cherts and carbonates

17.30-17.50 Florian Kurzweil, Köln: The evolution of the oceanic redox state before the Great Oxidation Event traced by stable tungsten isotope analyses in iron formations

18.00 *Conference Dinner (at the venue)*

### Tuesday, March 7th:

#### *Block I: Early mantle*

9.00-9.20 Daniel Frost, Bayreuth: Redox evolution of the early Earths mantle

9.20-9.40 Gerd Steinle-Neumann, Bayreuth: Lower Mantle Melting: Experiments and Thermodynamic Modeling in the Systems  $MgO-SiO_2$  and  $MgO-FeO-SiO_2$

9.40-10.00 Ludmila Carone, Graz: A versatile magma ocean-atmosphere model with multi-component outgassing to constrain the early Archean Earth composition

10.00-10.20 Jens Hopp, Heidelberg: Outgassing history and early atmospheric processes recorded by paleoatmospheric noble gases in Archaean rocks

10.20-10.50 *Coffee Break*

#### *Block II: Archean Processes*

10.50-11.10 Nils Messling, Göttingen: Preservation of primary W isotope anomalies in terrestrial rocks

11.10-11.30 Jonas Tusch, Köln: Search for Ru and Mo isotopic signatures of the pre-late veneer mantle

11.30-11.50 Carsten Münker, Köln: The Archean isotope record of Hadean geodynamic evolution

11.50-12.10 Sampri Basak, Copenhagen: High-resolution thermal and chemical evolution of Archean terranes: A case study from the Coorg Block, S. India

12.10-12.30 Mario Trierhoff, Heidelberg: Biogenic Carbon in Magmatic Minerals and Implications for the Preservation and Obliteration of Hadean Isotopic Biosignatures

12.30-14.00 *Lunch Break*





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### Tuesday, March 7th:

#### *Evolution of the early solar system and planets*

- 14.00-14.20 Dmitry Semenov, Heidelberg: Building a Habitable Earth: an astrophysicist perspective
- 14.20-14.40 Jan Leitner, Heidelberg: The Origin of Nitrogen on Earth: Implications from Isotope and Petrologic Studies of Planetary Materials at the Sub-Micrometer Scale
- 14.40-15.00 Peter Hoppe, Mainz: Iron-60 as a Heat Source for Melting and Differentiation of Earth-Forming Planetesimals and Planetary Embryos
- 15.00-15.20 Hubert Klahr, Heidelberg: The formation of planetary building bricks: From Pebbles to Asteroids and beyond
- 15.20-15.40 Wladimir Neumann, Berlin: Modelling the accretion and differentiation of the building blocks of the Earth
- 15.40-16.40 *Coffee Break and Poster Session*
- 16.40-17.00 Frank Wombacher, Köln: Volatile elements and their isotopes in chondrites
- 17.00-17.20 Wafa Abouchami, Köln: A high-precision Cadmium isotope study of the lunar regolith

### Wednesday, March 8th:

- 9.00-9.20 Lena Noack, Berlin: Global volatile cycles on (early) Earth

#### *Origin and early evolution of life*

- 9.20-9.40 Joachim Reitner, Göttingen: Geobiological significance of organic matter in early Archean rocks
- 9.40-10.00 David Ernst, Bremen: Evolution of the gallium-aluminium and germanium-silicon systematics in the marine environment
- 10.00-10.20 Michelle Gehringer, Kaiserslautern: On the trail of oxygenic photosynthesis on early Earth
- 10.20-10.40 Julius Havsteen, Tübingen: Understanding the tempo and mode of the Great Oxidation Event
- 10.40-11.10 *Coffee break*
- 11.10-11.30 Eric Runge, Tübingen: Understanding the taphonomy of biominerals: A multidisciplinary approach to reconstructing microbial evolution and environmental change in deep time
- 11.30-11.50 Ronny Schönberg, Tübingen: (CrIII)-mobility and isotopic effects by mineral: Doubts that Mesoarchean Cr isotopic variations record free atmospheric oxygen
- 11.50-12.10 Carolin Dreher, Tübingen: Survival of Phototrophic Fe(II)-oxidizing Bacteria in Strong UV-Light: the Role of Si-Fe Mineral Aggregates in Attenuating UV Flux
- 12.10-12.30 Christian Hallmann, Potsdam: Extrapolation of Fe(ox)-Organic interaction and stability to the Archean Earth system
- 12.30-12.45 *Concluding Remarks*

