



SPP1833
Building a
Habitable Earth

PROGRAMME
General Meeting 2021 - Online
SPP 1833 "Building a Habitable Earth"

Tuesday, March 23th, Morning Session: Evolution of the early solar system and planets

Zoom-Link: <https://uni-koeln.zoom.us/j/99864184863?pwd=czlXM1ZGR0RXQ2o0dIRDYjhYcIF5QT09>

Meeting-ID: 998 6418 4863

Passwort: 155928

- 9.00-9.20 Carsten Münker, Köln: Introductory remarks and update on SPP activities
- 9.20-9.40 Dmitry Semenov, Heidelberg: Towards making habitable Earths: the importance of pre-natal physical and chemical conditions
- 9.40-10.00 Janos Kodolányi, Mainz: No evidence for high $^{60}\text{Fe}/^{56}\text{Fe}$ in ancient chondrules
- 10.00-10.20 Jan Leitner, Mainz: A study of silicon and chromium nitrides in chondritic meteorites: Windows to early solar nebula processes?
- 10.20-10.50 *Coffee Break (Breakout-Rooms for individual discussions and meetings open)*
- 10.50-11.10 Frank Wombacher, Köln: Volatile element abundances in Apollo samples determined by isotope dilution ICP-MS
- 11.10-11.30 Wafa Abouchami, Köln: High precision cadmium stable isotopes in lunar regolith samples
- 11.30-11.50 Mario Fischer-Gödde, Köln: Ruthenium isotope constraints on the nature of Earth's late-stage building blocks
- 11.50-12.10 Ludmila Carone, Heidelberg: Towards a self-consistent multi-outgassing scheme for a magma ocean on the early Earth
- 12.10-12.30 Sara Vulpius, Berlin: The effect of fractional crystallization on the volatile release from intrusive bodies on early Earth
- 12.30-13.30 Lunch Break (Breakout-Rooms for individual discussions and meetings open)

Tuesday, March 23th, Afternoon Session: Archean Processes

Zoom-Link: <https://uni-koeln.zoom.us/j/93793369521?pwd=cmFGay95WFAwMGJueXhFQVU4Yk0vQT09>

Meeting-ID: 937 9336 9521

Passwort: 249050

- 13.30-14.00 Axel Hofmann, Johannesburg: KEYNOTE
- 14.00-14.20 René Heller, Göttingen: Habitability of early Earth: Liquid water under a faint young Sun facilitated by tidal heating due to a closer Moon
- 14.20-14.40 Andrea Piccolo, Mainz: Emergence of plate tectonic during the Archean: insights from 3D numerical modelling
- 14.40-15.00 Nils Messling, Göttingen: ^{182}W variations in Paleo-Archean mafic and felsic rocks from the Barberton Greenstone Belt, South Africa
- 15.00-15.30 *Coffee Break (Breakout-Rooms for individual discussions and meetings open)*
- 15.30-15.50 Jonas Tusch, Köln: Recycled roots of Hadean protocrust – A possible OIB endmember?
- 15.50-16.10 Lanita Gutieva, Bochum: Comparison of zircon trace element, Lu–Hf and U–Pb record from different parts of the Archean Lewisian Gneiss Complex, NW Scotland
- 16.10-16.30 Jonathan Lewis, Berlin: Eoarchean TTGs from the Itsaq Gneiss Complex, SW Greenland host recycled, surface derived sulfur
- 16.30-16.50 Christoph Heubeck, Jena: Detrital zircon provenance of the Archean Moodies Group, Barberton Greenstone Belt, South Africa and Eswatini
- 16.50-17.10 Deon Janse van Rensburg, Jena: Did volcanism in Moodies estuaries (Barberton Greenstone Belt, 3.22 Ga) assist early microbial life?
- 17.10-17.30 Sebastian Reimann, Jena: Syndepositional hydrothermalism selectively preserves records of one of the earliest benthic ecosystems, Moodies Group (3.22 Ga), Barberton Greenstone Belt, South Africa
- 17.30-18.00 Panel discussion
- 18.00 *optional: Breakout-Rooms for individual discussions and meetings open*



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Wednesday, March 24th, Morning Session: Origin and early evolution of Life

Zoom-Link: <https://uni-koeln.zoom.us/j/95393630681?pwd=VjZQd2FBYXl0eGEhSctaaHRQdFFZQT09>

Meeting-ID: 953 9363 0681

Passwort: 668199

- 9.00-9.30 Martin van Kranendonk, Sydney: KEYNOTE
- 9.30-9.50 Winfried Schwarz, Heidelberg: Biogenic Carbon in Magmatic Minerals and Implications for the Preservation and Obliteration of Hadean Isotopic Biosignatures
- 9.50-10.10 Florian Kurzweil, Köln: Redox control on the seawater tungsten isotope composition
- 10.10-10.30 Lucile Roue, Tübingen: Stable W and Mo isotopic data support increasing redox potentials of the Archean ocean through time
- 10.30-10.50 *Coffee break (Breakout-Rooms for individual discussions and meetings open)*
- 10.50-11.10 David Ernst, Bremen: The origin of banding in BIFs and the antiquity of the super-chondritic Y/Ho ratio and the lanthanide tetrad effect in seawater
- 11.10-11.30 Julius Havsteen, Tübingen: The conundrum of correlating the Deutschland and Rooihoogte formation(s) and its consequences for interpreting atmospheric oxygen evolution across the Great Oxidation Event
- 11.30-11.50 Achim Herrmann, Kaiserslautern: Surviving the ferruginous Archean ocean – Diurnal Fe(II)/(III) cycling in an simulated marine oxygen oasis
- 11.50-12.10 Sadia Tamanna, Kaiserslautern: How did Cyanobacteria survive increased atmospheric O₂ levels during the Great Oxygenation Event? The role of Superoxide Dismutases (SOD).
- 12.10-13.10 *Lunch Break (Breakout-Rooms for individual discussions and meetings open)*
- 13.10-13.30 Allison Enright, New Brunswick: Surviving Archean UV-Fluxes: The Role of Iron-Silicate Colloids in attenuating UV for Early Microbial Life
- 13.30-13.50 Muammar Mansor, Tübingen: Pyrite formation in microbial mats: Linking the present to the past
- 13.50-14.10 Caroline Unruh, Hannover: Searching for an inorganic signature of life in modern microbial mats
- 14.10-14.30 Raul Martinez, Bremen: Fraction-specific adsorption of cyanobacterial dissolved organic matter by/on iron (III) oxyhydroxides

Wednesday, March 24th, Afternoon Session: Early Oceans

Zoom-Link: <https://uni-koeln.zoom.us/j/94910263795?pwd=MldVSkJvUG5XVnFsVjc4cXVML0lvZz09>

Meeting-ID: 949 1026 3795

Passwort: 926913

- 15.00-15.20 Wanli Xiang, Göttingen: Paleoarchean carbonates – important archives for early Earth’s environments
- 15.20-15.40 Jakob Surma, Göttingen: Triple oxygen isotopes systematics and clumped isotopes of carbonates – a combined approach using high-resolution isotope ratio mass spectrometry to understand early Earth’s sediment record
- 15.40-16.00 Oliver Jäger, Göttingen: Tracing the oxygen isotope record of early Precambrian oceans – Insights from oxygen fragment ion analysis and CO₂-O₂ equilibration of carbonates
- 16.00-16.20 Ashley Martin, Hannover: Uranium and molybdenum records in modern microbial carbonates: an overview
- 16.20-16.50 *Coffee break (Breakout-Rooms for individual discussions and meetings open)*
- 16.50-17.10 Helge Mißbach, Köln: Ingredients for early life? Volatile organic compounds in 3.5 Ga old fluid inclusions
- 17.10-17.30 Eric Runge, Göttingen: A tsunami deposit in the ca. 3.48 Ga Dresser Formation (Pilbara Craton, Western Australia) – Implications for early Archean sedimentary processes
- 17.30-17.50 Joachim Reitner, Göttingen: Remnants of anaerobic phototrophic benthic mats in the 3.46 Ga Marble Bar Chert Unit (Pilbara, Western Australia)
- 17.50-18.00 *Concluding remarks*