

ISSI - Workshop

“The Geoscience of Exoplanets: Going beyond habitability”

Interior Structure Modeling

Models of planetary interior structure	Caroline Dorn, U Zürich
Rapid characterization of exoplanet interiors with machine learning	Philipp Baumeister, DLR Berlin
Investigating deep planetary interiors with experiments and models: the link between chemistry, structure and thermal evolution	Francesca Miozzi, Carnegie Inst. Wash.
Love numbers of exoplanets constraining their interior structure	Szillard Cismadia, DLR Berlin

Geodynamics and Evolution- Tectonics and Habitability/Life

Rocky Exoplanet Tectonism and Volcanism	Paul Byrne, Washington Univ., St Louis
Modes of planetary interior convection and their surface expressions	Diogo L. Lourenco, ETH Zürich
Rheology of planetary interiors	Shun Karato, Yale Univ.
The roles of rheology in the generation of (plate) tectonics	Arnould Maëlis, Univ. Lyon
Thermal evolution of rocky planets	Doris Breuer, DLR Berlin
Plate tectonics vs other tectonic modes	Nicolas Coltice, ENS Paris
Tidal dissipation and evolution	Emeline Bolmont, Obs. Geneva
The Importance of Continents, Oceans and Plate Tectonics for Finding Extraterrestrial Advanced Life	Taras Gerya, ETH Zürich
Earth's early continents, models of growth, and implications for planetary habitability and bioproductivity	Peter Cawood, Monash Univ. Melbourne
Exoplanet albedo variations as a new window into exogeology and exolife	Svetlana Berdyugina, KIS Freiburg

Topic Atmosphere/Hydrosphere

Interior/Atmosphere – Primordial/Primary atmospheres and magma oceans	Tim Lichtenberg, Univ. Groningen
Interior/Atmosphere - Outgassing and composition of secondary atmospheres	Caroline Brachmann, DLR & FU Berlin
The water storage capacities of rocky planet mantles and their surfaces	Claire Marie Guimond, Oxford Univ.
Early magma oceans and their relations to stellar insolation	Keiko Hamano, ELSI Tokyo
Magma ocean redox dynamics and its relevance to the oxidation of rocky planets	Fabrice Gaillard, ISTO Orleans
What can we constrain about rocky exoplanet evolution from atmosphere observations?	Brad Foley, PSU

Atmospheres on rocky exoplanets: observation through transmission and emission spectroscopy	Hannah Diamond-Lowe, DTU Lyngby
<i>Upper Atmosphere/Magnetosphere - Star/Planet Interaction</i>	
Star planet interaction: Relevance for planetary evolution	Helmut Lammer, IWF Graz
Estimating atmospheric mass losses from young and mature (exo)planets: implications for their evolution	Daria Kubyshkina, IWF Graz
Atmospheric ion escape and its role in the evolution of a habitable atmosphere	Iannis Dandouras, IRAP Toulouse
Effects of stellar XUV radiation and planetary intrinsic magnetic fields on atmospheric escape from terrestrial planets: Insights from studies of Earth and Mars	Kanako Seki, Univ. Tokyo
Star-planet interactions and their role for habitable-zone planets	Antonio Lanza, INAF, Catania
Do magnetospheres affect atmosphere evolution and erosion?	Michael Way, NASA GSFC
<i>Habitability/Life and Biosignatures</i>	
Cosmic biology	Charles Lineweaver, ANU Canberra
The effects of continental distribution on the climate and habitability of exoplanets	Donald Glaser, ASU Tempe
Geoscience factors that can regulate biomass on exoplanets, and the implications for habitability.	Manasvi Lingham, FIT Melbourne, FI
Planetary Controls on the Productivity of Exoplanet Life and Remote Biosignature Detectability	Stephanie Olson, Purdue University
<i>Future Observations</i>	
ESA missions and plans of relevance to the study of rocky (exo)planets	Theresa Lüftinger, ESA-ESTEC
Unveiling the most promising temperate rocky planets with the James Webb Space Telescope	Elsa Ducrot, Univ. Liege
JWST future observations of rocky exoplanets	Pierre-Olivier Lagage, CEA Paris-Saclay
Observability of the surface features of rocky worlds	Renyu Hu, JPL
The Detectability of Venus and Earth-like Exoplanet Atmospheres	Jacob Lustig-Yaeger, JHU-APL
The LIFE mission - Detection of atmospheric biosignatures on exoplanets with a mid-infrared nulling interferometer	Sascha Quanz, ETH Zürich
The Habitable Worlds Observatory and Tests for Exoplanet Geoscience Theories	Shawn Domagal-Goldman, NASA GSFC
New Strategies (and Challenges) for Characterizing Rocky Exoplanet Atmospheres and Surfaces with Future Telescopes.	Avi Mandell, NASA GSFC