AGENDA 6th Alliance Week – Planetary Evolution and Life – Planet TOPERS May 21-23, 2013

Tuesday, May 21st

09:00-09:10 Welcome (Spohn)

What makes a planet habitable?

09:10-09:30 Factors constraining habitability of CO2-dominated atmospheres (von Paris)

09:30-09:50 Outgassing constraints related to the formation of CO2-dominated atmospheres (Noack)

09:50-10:10 3D atmospheric modelling studies of the Early Earth (Kunze)

10:10-10:30 3D modelling studies of an Earth-like planet orbiting in the Habitable Zone of main sequence stars (Godolt)

10:30-11:00 Coffee

11:00-11:20 Planetary limits on Geochemical Cycles (Kleidon)

Life and planetary evolution

11:20-11:40 Explaining general interaction of atmosphere and biosphere (de Vera)

11:40-12:00 Evolution of Earth-like Extrasolar Planetary Atmospheres (Gebauer)

12:00-12:20 Photosynthesis of planets orbiting in the habitable zones of M-stars (von Paris and de Vera)

12:20-12:40 Modelling the impact of the Earth's biosphere on continental growth (Höning)

12:40-13:30 Lunch

Biosignatures

13:30-13:50 Biosignatures of microbial mats (Airo)

13:50-14:10 BIOMEX: an overview about Biosignatures determined by Raman Spectroscopy (de Vera)

14:10-14:30 The effects of space travel on biosignatures: A study with the carotenoid Deinoxanthin (Leuko)

14:30-14:50 Raman spectroscopic investigations on biogenic compounds and lichen thalli - biosignatures for astrobiological research (Meeßen)

14:50-15:10 Effect of cosmic rays and incoming UV upon modelled atmospheric biosignatures (Grenfell)

15:10-15:40 Coffee

15:40-16:00 Calculating spectral signatures of atmospheric biosignatures for Earth-like planets based on an E-ELT configuration (von Paris)

Water budget on early Mars

16:00-16:20 Origin and loss of protoatmospheres and water inventories on Mars and the Earth (Lammer)

16:20-16:40 Production and escape of suprathermal atoms from Mars and Venus (Lichtenegger)

16:40-17:00 Constraining the atmosphere evolution on terrestrial planets from interior outgassing (Plesa)

Wednesday, May 22nd

Water budget on early Mars (continued)

09:00-09:20 Impact erosion and replenishment of the early Martian atmosphere (de Niem)
09:20-09:40 Deriving precipitation rates on early Mars: surface runoff deduced from dendritic valley networks (Petau & von Paris)
09:40-10:10 Discussion (Jaumann)
10:10-10:40 Coffee

Water and Life under extreme conditions

10:40-11:00 Gale Crater's story about water on Mars (LeDeit & Tirsch)
11:00-11:20 Seasonal activity of gullies in South Polar Pits, Mars (Raack)
11:20-11:40 Optical reflectometry measurements on single grain boundaries in ice (Hansen-Goos)
11:40-12:00 Mars: Interfacial water, brines and veins with hydration signatures (Möhlmann)
12:00-12:20 A closer look at the hydration and outgassing behaviour of Leptothrix and Circinaria gyrosa (Jänchen)
12:20-12:40 Vitality of cyanobacteria under Mars-like niche conditions (de Vera)
12:40-13:30 Lunch
13:30-13:50 Zero-growth and survival stages of bacteria (Szewzyk)

Planetary formation and early evolution

13:50-14:10 Introduction (Kührt)
14:10-14:30 Water formation in the solar nebula (Gast)
14:30-14:50 Formation of the cores of ice/gas giants by pebble accretion (Morbidelli)
14:50-15:10 Implications of planetary migration to the formation probability of habitable worlds (Bitsch)
15:10-15:40 Coffee
15:40-16:00 Basin-Forming Impacts on Mars: Consequences on Mantle Dynamics (Bierhaus)
16:00-16:20 Order and chaos – the two faces of impacts (Fritz)
16:20-16:40 From Earth to super-Earths - Numerical modelling of plate tectonics (Stein)

Thursday, May 23rd

Networkday

09:00-09:30 Introduction: Helmholtz Alliance ‚Planetary evolution and life' (Spohn)
09:30-10:30 Center for Space and Habitability (Altwegg/Heng)
10:30-11:00 Coffee
11:00-11:30 Pathways to Habitability (PatH) (Güdel)
11:30-12:00 EANA (Horneck)
12:00-12:30 Nordic Network (Geppert)
12:30-13:30 Lunch
13:30-14:00 Helmholtz Alliance ‚ROBEX' (Wilde)
14:00-14:30 Self-consistent formation of continents (Noack)
14:30-15:00 Surface conditions evolution on Venus and mantle/atmosphere coupling (Gillmann)
15:00-15:30 Coffee
15:30-16:00 Extinct nuclide Mn-Cr dating of meteorites by Secondary Ion Mass Spectrometry and the evolution of planetesimals (McKibbin)
16:00-17:30 Planet Topers (Dehant)