Evolution of Exoplanet Atmospheres and their Characterisation

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2th ISSI team meeting, March 23. - 25. 2009;
25. – 26. 2009 joint ISSI team Blue Dots Team (BDT) meeting
International Space Science Institute, Bern, Switzerland

The 2th ISSI team meeting will last 2 days during March 23 – March 24, 2009 and will continue as joint BDT meeting during March 25 and 26, 2009. The meeitng rooms is also reserved on March 27 for those who depart on Friday afternoon or eavening. The meeting will start with a one day informal working group workshop, where the participants will be updated on the recent team activities, research results etc. The second day is dedicated to the first discovery of a transiting "super-Earth" (or more likely on a "Super-Mercury" or "super-Venus") with the CoRoT space observatory. Discussions on the discovery, follow up observations, and preliminary physical characterisation with first simulation results will be shown and depated. The remaining two days on March 25 and 26 will be used for a joint meeting with colleagues from the BDT. Here the preparation of an exoplanet mission/instrument/ roadmap and related science activities will be discussed.

1th day: Monday 22. 03. 2009

9:30 - 10:15 → **H. Lammer - *IWF, AAS, Graz, Austria***: What makes a planet habitable? (30 min + 15 min discussion time)

10:15 – 11:00 → **Sean N. Raymond (B. Pecnic) - Center for Astrophysics and Space Astronomy, University of Colorado, Boulder, USA** : Terrestrial/habitable planet formation (30 min + 15 min discussion time)

11:00 – 11:30 coffee break

11:30 - 12:15 → **Yu. N. Kulikov – *PGI/RAS, Murmansk, Russian Federation***: Stability of CO_2, N_2 and hydrogen-rich atmospheres and consequences for habitability (30 min + 15 min discussion time)

12:15 – 13:00 → **N. Terada - National Institute of Information and Communications Technology, Nukui-Kitamachi, Koganei, Toko, Japan:** Ion escape and ion outflow from terrestrial planets under extreme solar/stellar wind conditions (early Solar System and/or close-in terrestrial exoplanets) (30 min + 15 min discussion time)

13:00 - 14:30 lunch time

14:30 - 15:15 **M. L. Khodachenko - *IWF, AAS, Graz, Austria:*** The mass loss limit of close-in gas giants (20 min + 10 min discussion time)

15:15 – 16:00 → **M. Holmstrom – *IRF, Kiruna, Sweden:*** Energetic neutral atoms around

HD 209458 b: Estimations of magnetospheric properties (30 min + 15 min discussion time)

16:00 – 16:30 coffee break

16:30 - 17:00 → **L. Kaltenegger** - ***Harvard-Smithsonian Center for Astrophysics***: Characterisation of exoplanets (Lisa please specify the title) (20 min + 10 min discussion time)

17:30 – 18:00 → **H. Rauer** - ***DLR, Berlin, Germany***: The effect of clouds on habitability conditions (20 min + 10 min discussion time)

18:00 - 18:30 → **J. Schneider (J. Paillet) – *Obs. Paris Meudon, France:*** The ESO E-ELT study on the detection of thermal IR from the ground (15 - 20 min + discussion time)

18:30 End of the first day

2th day: Tuesday: 23. 03. 2009

CoRoT-Exo-7b day

9:30 - 10:15 → **M. Fridlund** - ***ESA, ESTEC, The Netherlands***: CoRoT exoplanets and the discovery of the first transiting "Super-Earth" exoplanet (30 min + 15 min discussion time)

10:15 - 11:00 → **C. Broeg** - ***Space Research and Planetary Sciences Physikalisches Institut University of Bern, Switzerland*** and **G. Wuchterl** – ***Tautenburg Obs., Germany:*** Origin of planets & CoRoT-Exo-7 b and how does the discovery fit in the predicted CoRoT exoplanet population (30 min + 15 min discussion time)

11:00 - 11:30 coffee break

11:30 – 12:00 → **H. Lammer** - ***IWF, AAS, Graz, Austria***: Could CoRoT-Exo-7 b be a core - of a gas giant or a hot Neptune? (20 min + 10 min discussion time)

12:00 – 12:30 → J.M. Grießmeier **(*ASTRON, The Netherlands*), M. L. Khodachenko – *IWF, AAS, Graz, Austria***: Magnetosphere estimations of CoRoT-Exo-7 b – type planets (20 min + 10 min discussion time)

12:30 - 14:00 lunch time

14:00 - 14:45 → **J. Schneider (J. Paillet) – *Obs. Paris Meudon, France:*** What is the chemical composition and temperature distribution of CoRoT -Exo-7 b ? (30 min + 15 min discussion time)

14:45 - 15:30 → **F. Selsis – *ENS-CRAL, France:*** From Sauna to Ocean planets (30 min + 15 min discussion time)

15:30 - 16:00 coffee break

16:00 – 16:45 → **A. Mura (T. Penz) -** ***Institute of Interplanetary Space Physics INAF-IFSI Rome, Italy***: Exosphere-atmosphere formation and stellar wind interaction from CoRoT-Exo-7 b "super-Mercury"-type planets

16:45 - 17:15 coffee break

17:15 – 18:00 (open end) Slinter session:

Splinter A: Discussions (observation possibilities of atmospheric species from CoRoT-Exo-7 b, etc.). Due to the sensitivity of the case only CoRoT-related colleagues and those who were related to preliminary CoRoT-Exo-7 b modeling can contribute to the discussions related to observations of this planet

Splinter B: Discussions related to other research activities within the exoplanet atmosphere characterisation and evolution topics

Wednesday & Thursday: 25. 03. – 26. 03 2009

Joint ISSI Team – BDT meeting at the same meeting room which is reserved for both teams until Friday March 27, 2009.

Meeting starts at about 09:00

Preliminary meeting agenda:

- Iteration on the Blue Dots report

- Pathways meeting SOC work

- Astrometry vs. radial velocities for identifying habitable exoplanets? Discussions with M. Shao and S. Udry

- Discussions on transit spectroscopy possible for super-earths around M stars?

Etc.