

Evolution of Exoplanet Atmospheres and their Characterisation

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**1th team meeting – International Space Science Institute, ISSI
Bern, Switzerland, 17. - 19. March 2008**

The 1th ISSI team meeting will last 2.5 - 3 days during March 17 – March 19, 2008. There will be an open end during Wednesday afternoon. The meeting will start with a 1.5 day informal working group workshop, where all participants give 30 min (20 min + 10 min discussion) presentations about their research activity related to the project aims of the team. These informal presentations will be used as a basis for discussions and the formation of working groups for the remaining meeting period.

1th day: Monday 17. 03. 2008

9:00 - 9:20 → **ISSI representative** - *ISSI, Bern, Switzerland*: ISSI activities, goals of ISSI teams

9:20 - 9:30 → **H. Lammer** - *IWF, AAS, Graz, Austria*: Introduction of the ISSI team

Present and future exoplanet missions

9:30 - 10:00 → **M. Fridlund** - *ESA, ESTEC, The Netherlands*: What kind of data from exoplanet missions (ESA, NASA, JAXA, etc.) can we expect in the near future CoRoT, PLATO and beyond

Origin of planetary systems and planets

10:00 - 10:30 → **R. Liseau** - *OSO, Chalmers Univ. Technology, Sweden*: Latest observations on planetary discs and nebulae

10:30 – 11:00 coffee break

11:00 - 12:00 → **G. Wuchterl** & **B. Pecnic** – *Tautenburg Obs., Germany / Dept. of Physics, Univ. Split, Croatia*: From coreless giants to terrestrial atmospheres: Formation models of planetary populations at CoRoT's epoch of observation

12:00 - 12:30 → **T. Penz** – *INAF-Oss. Astron. Di Palermo, Italy*: Exosphere formation time and X-ray/EUV induced atmospheric loss of exoplanets

12:30 - 14:00 lunch time

Star-planetary atmosphere/magnetosphere interaction (loss of atmosphere and water inventories, characterisation, habitability aspects)

14:00 - 14:30 → **C. Cecchi-Pestellini** – *INAF-Oss. Astron. di Cagliari, Italy*: Stellar X-ray energy deposition and heating of exoplanet atmospheres

14:30 - 15:00 → [Yu. N. Kulikov](#) – *PGI/RAS, Murmansk, Russian Federation*: Thermospheric heat budget modelling under extreme stellar X-ray and EUV conditions (hydrostatic and non-hydrostatic cases)

15:00 - 15:30 → [M. L. Khodachenko](#) - *IWF, AAS, Graz, Austria*: Stellar winds and CME propagation modelling including M stars (impacts on habitability)

15:30 – 16:00 coffee break

16:00 - 16:30 → [M. Holmstrom](#) – *IRF, Kiruna, Sweden*: Characterisation of exoplanet atmospheres, magnetospheres and stellar winds from ENA observations

16:30 - 17:00 → [Kunihiro Keika](#), - *IWF, AAS, Austria*: ENAs generated inside planetary magnetospheres: Synergies to exoplanet hydrogen cloud observations

17:00 - 17:30 → [J.-M. Grießmeier](#) – *LESIA/CNRS-Obs. de Paris, France*: Protection of extrasolar Earth-like planets against energetic particles

17:30 - 18:00 → [N. Terada](#) / [H. Lammer](#) – *IICT-CREST, Japan*: Atmosphere erosion (non-thermal) from Earth-like exoplanets within M star habitable zones

18:00 – 18:30 → [Kaijun Liu](#) / [E. Kallio](#) – *FMI, Helsinki, Finland*: Stellar wind interaction and ion loss from terrestrial exoplanets (hybrid simulations)

18:30 End of the first day

2th day: Tuesday: 18. 03. 2008

Impact effects of planetary atmospheres

9:00 - 9:30 → [Lê Binh San Pham](#) - *Royal Observatory of Belgium*: Does impact erosion set the limit to the size and mass of habitable planets – Mars as an example

Exoplanet atmospheres, bio-markers and habitability

9:30 - 10:00 → [F. Selsis](#) – *ENS-CRAL, France*: What do we want to learn about the planets?

10:00 - 10:30 → [J. Schneider](#) ([J. Paillet](#))– *Obs. Paris Meudon, France*: Characterizing exoplanets: unusual suspects

10:30 - 11:00 coffee break

11:00 - 11:30 → [G. Tinetti](#) – *UCL, London, UK*: Characterisation of exoplanet atmospheres: What do we know from observations?

11:30 - 12:00 → [J. Lee-Grenfell](#) / [H. Rauer](#) – *DLR, Berlin, Germany*: Response of

atmospheric biomarkers related to energetic particles and habitability related modelling activities at the Dept. of Extrasolar Planets and Atmospheres

12:30 End of the informal working group workshop

12:30 - 14:00 lunch time

14:00 - 14:30: Formation of working groups

WG suggestions

WG 1: Planetary/atmosphere formation and evolution (habitability aspects)

WG 2: Exoplanet ENA observations (characterisation of exoplanet atmosphere/magnetosphere)

WG 3: Atmosphere characterisation – biomarkers (visible, IR, etc.)

WG 4: What is the best way to reconstruct a planetary atmosphere model from observations

16:00 - 16:30 coffee break

WG discussions continue

18:00 End of the second day

3th day: Wednesday: 19. 03. 2008

Results and plans of the various WGs (common paper/study plans, cooperations)

9:00 - 10:30 Common discussions

10:30 - 11:00 coffee break

Open end of the 1th ISSI team meeting

14:15: Seminar talk at the Physics Institute of the University of Bern by: [M. Holmström](#) IRF, Kiruna, Sweden - Energetic neutral atoms as the explanation for high-velocity hydrogen around an extrasolar planet