



## Life on Earth and in the Universe – Current State and Future Visions

Preliminary program for the annual meeting of the Swedish Astrobiology Network (SWAN), 16-18 October 2017, at Umeå University, in Umeå, Sweden. For more information, see [www.emg.umu.se/astrobiologi-2017/](http://www.emg.umu.se/astrobiologi-2017/) or contact Natuschka Lee, [natuschka.lee@umu.se](mailto:natuschka.lee@umu.se)

---

### **1. General information on astrobiology research and space activities in the Nordic countries:**

- Alexis Brandeker (PhD, Stockholm University, director of the Swedish Network on Astrobiology (SWAN)).
- Wolf Geppert (PhD, Stockholm University, director of the Astrobiology Centre and coordinator of the Nordic Astrobiology Network).
- Jon-Erik Dahlin (KTH, Royal Institute of Technology in Stockholm, director of Svenska Rymdsällskapet, The Swedish Space Society).

### **2. Astronomy and space physics:** In progress.

### **3. Prebiotic chemistry and molecular evolution of life:**

- Anna Neubeck (PhD, Stockholm University, Astrobiology Centre): Title to be announced.
- Felipe Cava (PhD, Umeå University): Evolutionary aspects of bacterial cell wall chemical structure.

### **4. Life detection techniques on Earth and in space:**

- Jonathan Klaminder (PhD, Umeå University): Ancient terrestrial ecosystems during the Ice age (final title will be announced).

### **5. Extremophilic organisms on Earth and in space, and their role for the biogeosphere:**

- Ingemar Jönsson (Professor, Kristianstad University, Sweden): Space related research on tardigrades.
- Sylvain Monteux (PhD candidate, Umeå University): Extreme microbes in permafrost and their impact on climate change.

### **5. Theoretical, evolutionary ecology from an astrobiological perspective:**

- Roland Jansson (PhD, Umeå University): The effect of orbital dynamics on biodiversity patterns on Earth and "what if" scenarios for alternative orbital configurations.
- Mehdi Cherif (PhD, Umeå University): The mechanics of life: can we predict ecological interactions from the physical properties of life's media?

### **6. Sustainable technology on Earth and on future space missions:**

- Christiane Funk (Professor, Umeå University): MicroBioRefine – wastewater treatment and production of energy from psychrotrophic organisms.
- Stina Jansson (PhD, Umeå University): Thermal treatment of waste materials into carbon materials and gaseous fuels on future Mars missions. (final title will be announced).
- Johannes Messinger (Professor, Umeå University): Artificial photosynthesis: making H<sub>2</sub> from sunlight and water.

### **7. Brainstorming – open discussion:**

- A more academic approach on the probability of life beyond Earth and "aliens" in the universe: Do biological laws exist and if so, do they also exist elsewhere in the universe? How will this affect the future of our research policy and space missions?

### **8. Public lecture:**

- Jon-Erik Dahlin (KTH, Royal Institute of Technology in Stockholm, director of Svenska Rymdsällskapet, The Swedish Space Society): Rymd-aktiviteter i Sverige, astronaut-utbildningsmöjligheter, rymd-turism.