

Molecular Frontiers Symposium and Youth Forum

Exploring the boundaries: the science of the extremes

Date: May 28–29, 2013

Venue: The Beijer Hall, The Royal Swedish Academy of Sciences
Lilla Frescativägen 4A, Stockholm, Sweden

Chairs: *Professor Bengt Nordén*
Lorie Karnath MBA, Ph.D. (hon)

Organization: *Associate Professor Dina Petranovic, CEO Global Molecular Frontiers Foundation*

Tuesday May 28 2013

09:00 **Opening address**

Prof. Barbara Cannon
President of the Royal Swedish Academy of Sciences

Welcome note

Prof. Bengt Nordén
Chairman of the Molecular Frontiers Foundation

09:15 **Explorations of space and planets**

Dr. Laurie Leshin:
*Dean of Science; Professor of Earth and Environmental Sciences,
Rensselaer Polytechnic Institute, USA*

10:00 **Operational perspective of space biomedical effects**

Dr. Leroy Chiao
*Former NASA Astronaut and International Space Station
Commander, USA*

10:45 **Break (fika)**

11:00 **Explorations of extreme ocean environments of planet earth**

Prof. Alfred Scott McLaren
*Captain U.S. Navy (Ret.), President of the American Polar Society;
President Emeritus of the Explorers Club, Director and Senior Pilot,
Sub Aviator Systems LLC, USA*

11:45 **Lunch break (Lunch on your own)**

13:30 **The Universe**

Nobel Laureate Prof. Gerard 't Hooft
Professor at Utrecht University, the Netherlands

14:15 **Study of other planets and their environments**

Dr. Russell Hemley
*Director, Geophysical Laboratory, Carnegie Institution of
Washington, USA*

- 15:00** **Break (Fika)**
- 15:15** **Prebiotic molecules in young solar systems**
Dr. Jes Jørgensen
Associate Professor Niels Bohr Institute and Centre for Star and Planet Formation, University of Copenhagen, Denmark
- 16:00** **General discussion**
Moderator Prof. Magdalena Eriksson
- Youth Forum and announcement of the Molecular Frontiers Inquiry Prizes (MFIP)**
Dr. Andreas Mershin
- 18.00** **End of day**

Wednesday May 29 2013

- 09:00** **Extremophiles and the search for life in the universe**
Prof. Dr. Lynn Rothschild
Chief Scientist, Synthetic Biology, NASA Ames Research Center, Adjunct Professor at Brown University, consulting Professor at Stanford University, USA
- 09:45** **Unanswered questions in deep carbon research**
Prof. Dr. Robert Hazen
Carbon at Extremes; Senior Staff Scientist, Carnegie Institution, Geophysical Laboratory; Robinson Professor of Earth Sciences, George Mason University; and Executive Director, Deep Carbon Observatory, USA
- 10:30** **Break (fika)**
- 11:00** **Hyperthermophiles in the History of Life**
Prof. Dr. Karl Stetter
Professor Emeritus, University of Regensburg, Germany
- 11:45** **Surviving sustainably on planet earth**
Prof. Dr. Nina Fedoroff
Distinguished Professor at King Abdullah University of Science and Technology (KAUST), Saudi Arabia, Evan Pugh Professor of Pennsylvania State University, USA
- 12:30** **Lunch (Lunch on your own)**
- 13:45** **Panel discussion**
The mysteries of extreme environments of Earth and beyond. Open questions: what should we explore (where, why and how) and what do we expect to find? And if we find something or someone, what then?
Moderator: Lorie Karnath MBA, Ph.D (hon)
- Discussion panel**
All speakers
- 15:45** **Conclusions and closure (Prof. Bengt Nordén)**