



PRIZES 2009

**Leena Bruckner-Tuderman received the Eva Luise Köhler Research Award**



The Eva Luise and Horst Köhler Foundation supports people with rare diseases in cooperation with the Alliance Chronical Rare Diseases (ACHSE e.V.). The prize is awarded to scientists with a record of exceptional research on rare diseases.

The distinction, endowed with €50,000, was awarded this year to Professor Leena Bruckner-Tuderman by Eva Luise Köhler, patron of ACHSE, in the presence of the Federal President Horst Köhler.

Leena Bruckner-Tuderman, FRIAS School of Life Sciences – LIFENET director and director of the University Dermatology Institute, received the research award for her work on "Molecular mechanisms and preclinical testing of biological therapies for Dystrophic Epidermolysis Bullosa", a genetic yet clinically heterogeneous blistering disorder of the skin.

**Internal Senior Fellow Peter Jonas to receive the Adolf-Fick-Prize**

The Adolf-Fick-Prize is awarded during the 88th Annual Congress of the German Society of Physiology (DPG) by the Physics & Medical Society Würzburg. It is considered to be the most respected physiology prize in Germany and includes a cash award of €10,000. Granted only once every five years, the award is named in honour of the renowned >>

German physiologist Adolf Eugen Fick (1829-1901), discoverer of Fick's laws of diffusion. Receiving this award, Peter Jonas fills the shoes of Hans Spemann and Erwin Neher who belong to those in the past who have received this distinction.

**Internal Senior Fellow Thomas Laux to receive the Cornelia-Harte-Prize**

The Cornelia-Harte-Prize for 2009, endowed with €5,000, will be awarded by the Society for Developmental Biology to Professor Thomas Laux for his work on plant stemcells and his quantitative approaches in the field of developmental biology.

**FIRST FRIAS-JUNIOR FELLOWS MEETING**

On the evening of February 24th, the first FRIAS Junior Fellow meeting took place in the lounge. Almost all Junior Fellows from all four schools attended. Beer, wine and some crackers helped in finding a common language between natural scientists and humanists and truly interdisciplinary subjects were discussed ranging from the economic crisis to wine tasting. The atmosphere was relaxed and the feedback was very positive. Joint undertakings were discussed, opening up opportunities of inter-school collaborations. The prevailing opinion was to have periodical meetings to strengthen the interaction. Thus, this report will be continued....

**TO COME**

11.05.2009 11:15h, LIFENET Seminar - **Prof. Ferenc Nagy**

17.-19.06.2009 - **International Symposium on Systems Biology and Inauguration of the ZBSA**

(more Information: [www.frias.uni-freiburg.de/lifenet/veranstaltungen](http://www.frias.uni-freiburg.de/lifenet/veranstaltungen))

REVIEW

Hermann Staudinger Lecture with Professor Richard R. Ernst, February 3rd, 2009

**"Fascinating Insights in Chemistry, Biology and Medicine by NMR"**

The third Hermann Staudinger Lecture was given by Nobel Prize Laureate Professor Richard R. Ernst of the Laboratory of Physical Chemistry, ETH Zurich. Ernst is one of the pioneers of high resolution nuclear magnetic resonance (NMR) spectroscopy and was awarded the Nobel Prize in Chemistry in 1991 for his ground-breaking work in this field.

With the words "it is a pleasure to speak in front of a Hermann Staudinger fan club", Richard Ernst opened his lecture in the crowded chemistry lecture hall for a fascinating presentation of nearly one century of NMR history.

The very beginning of NMR spectroscopy was in the 1920s with the discovery of a non-vanishing angular momentum of nuclei, the so-called "nuclear spin", and the resulting nuclear magnetic moment. NMR using a magnetic nucleus processing in a magnetic field was then first measured in molecular beams in 1938 and refined for the use on liquids and solids in 1946.

In the following decades many excellent researchers made every endeavour to make NMR, a carrier of chemical and structural information of molecules, a powerful tool spanning chemistry, biology and medicine. The pioneering invention of multi-dimensional NMR around 1970 and its immense progress since then have furthermore enabled scientists to extensively study molecular dynamics, e.g. chemical exchange reactions, and the structure and function of biomolecules such as proteins. Using the magnetic field gradient for magnetic resonance imaging (MRI), this technique was also introduced in medical applications as it allows the visualisation of structure and function (fMRI) of tissue and organs and with this the diagnosis of diseases such as brain tumors, stroke or stenosis. >>

"I am convinced that NMR is going on forever..." concluded Richard Ernst his one hour presentation of lived science. Following the lecture, interested students and scientists had the opportunity to join the Nobel Prize Laureate and come into discussion with him.

PRIZES 2009

**Rolf Mülhaupt Received Staudinger Prize**

The German Chemical Society (GDCh) awarded the Hermann Staudinger Prize 2009 to Rolf Mülhaupt for his outstanding and original work on catalysts and polyolefins, and for his achievements in connecting polymer research with industrial applications.

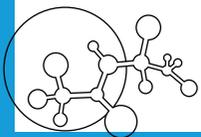


Rolf Mülhaupt's exceptional career includes a PhD from the ETH Zurich, industrial work with DuPont in Wilmington, USA, with Ciba in Marly, Switzerland, and since 1989 a professorship in Macromolecular Chemistry as well as the directorship of the Freiburg Materials Research Center (FMF) at the University of Freiburg since 1992.

The Staudinger Prize was presented to Rolf Mülhaupt on February 25, on the eve of the traditional 'Makromolekulares Kolloquium' in Freiburg (February 26-28, 2009).

More information on the GDCh and the Staudinger Prize can be found at: [www.gdch.de/oearbeit/press/2009/03.htm](http://www.gdch.de/oearbeit/press/2009/03.htm) (German version only).





## NEW EXTERNAL SENIOR FELLOW

From April 1st on Professor Andreas Manz from the Institute for Analytical Sciences, Dortmund, will join the FRIAS School of Soft Matter Research for 11 months.

Manz., a trained organic and analytical chemist obtained his PhD in 1986 at the ETH in Zürich.



Afterwards he continued his scientific career at Hitachi Central Research Laboratory (Tokyo, Japan) and Ciba-Geigy (Basel, Switzerland), followed by his habilitation at the Technical University Vienna, Austria in 1995.

In 1995 Andreas Manz began his foray into industry by becoming head of research at Zeneca/SmithKline Beecham Centre for Analytical Sciences at Imperial College, (London, U.K.). Simultaneously Manz built up his own company 'Casect Corporation, London' and was adviser to several companies all of which are active in "lab-on-chip" technology. Still fostering his connections with the industry, Manz returned to the university in 2003 to become a professor at the University of Dortmund. Andreas Manz, who holds an impressive collection of prizes and awards in the field of nanotechnology as well as several memberships in advisory boards and scientific committees, is also author and co-author of 220 scientific publications, with more than 11,000 citations.

At FRIAS, Professor Manz will collaborate with several FRIAS fellows on the projects "Microfluidics and stem cell research", "Electrokinetic motion and microfluidic NMR" and "Vesicle tubes for novel soft matter microfluidic approaches".

## NEW JUNIOR FELLOW

On March 1st 2009, Aurelio Mateo-Alonso joined the School of Soft Matter Research of FRIAS as a Junior Research Fellow. His research laboratories are located at the "Institut für Organische Chemie und Biochemie".



Born and raised in Madrid (Spain), Aurelio obtained his MSc in Organic Chemistry from Universidad Autonoma de Madrid. In 2004 he completed his PhD under the supervision of Prof. James H.P. Utley and Dr. Peter B. Wyatt at Queen Mary, University of London (UK). In March 2004 he joined the group of Prof. Maurizio Prato at Università di Trieste (Italy), where he enjoyed five wonderful and fruitful years working on the design and synthesis of molecular machines controlled by C60, and supramolecular chemistry of carbon nanotubes.

Research in Aurelio's group primarily aims at developing molecular and supramolecular materials following two major research lines; (i) development and applications of electrochemically-driven molecular machines, (ii) synthesis of extended aromatic molecules for electronic applications. Aurelio will take advantage of the expertise of other FRIAS fellows to cover several aspects of the application of the materials that his group will develop.

## TO COME

Soft matter seminars:

- 20.04.2009 11:15h - **Dr. Sabine Ludwigs**
- 04.05.2009 11:15h - **Prof. Gerald A. Urban**
- 15.06.2009 11:15h - **Prof. Michael Krische**
- 29.06.2009 11:15h - **Prof. Hans Briegel**

08.-11.07.2009 - **Workshop: Black Forest Focus on Soft Matter**

(more Information: [www.frias.uni-freiburg.de/matter\\_research/veranstaltungen](http://www.frias.uni-freiburg.de/matter_research/veranstaltungen))

## NEW EXTERNAL SENIOR FELLOW

Professor Masamitsu Wada from the Division of Photobiology, National Institute for Basic Biology, Myodaiji-cho, Okazakishi, Japan, will join the FRIAS School of Life Sciences on



April 1st for six months. Next to the FRIAS fellowship, Wada was recently awarded an Alexander von Humboldt Research Award, endowed with €60,000.

In 1963 Masamitsu Wada began his studies on plant biology at the University of Tokyo, where he also obtained his PhD in 1971. Wada continued his research as an assistant and associate professor at the University of Tokyo, and subsequently moved to the Tokyo Metropolitan University in 1989 where he worked as a full professor until 2005.

Following his association at the National Institute for Basic Biology (NIBB) near Nagoya as an adjunctive professor from 1998 on, Masamitsu Wada decided on a complete move to the NIBB in 2005.

For many years now, Wada has been studying photobiological and cell-biological mechanisms in gametophytic cells of the fern *Adiantum capillus-veneris*. Fern gametophytes are a very useful experimental system in his research because these cells have a remarkable stability once harvested and the gametophytes have a simple structure and are not surrounded by tissue, so observation and manipulation of the cells is very easy.

Masamitsu Wada is researching light-dependent cellular changes in plant cells. In his earlier work he could demonstrate that light-induced nuclear and chloroplast photorelocation are mediated by photoreceptors. Thus plants can sense their surrounding light environment by using one of the three photoreceptors phytochrome, cryptochrome and phototropin that absorb in the UV, blue/near UV, and red/far-red spectral ranges. >>

In Freiburg, Eberhard Schäfer's research group could complement these studies with experiments showing that in flowering plants one of these photoreceptors, phytochrome, can also translocate to the nucleus to induce various signaling cascades. In his FRIAS project Masamitsu Wada will now look into the light-induced nuclear translocation of phytochromes in ferns and moss. He aims at identifying the underlying mechanisms leading to the photoreceptor transport as well as identifying the differences between the mechanisms in flowering plants and ferns/moss.

By implementing his knowledge of the fern-gametophyt system here in the Freiburg Wada will complement the Freiburg knowledge of higher plants. Promising months ahead are expected through this synergy.

## JOINT LIFENET/SOFT MATTER SEMINAR

On March 9th, 2009 Gunnar Cedersund, Scientific Director of Systems Biology at the Department of Clinical and Experimental Medicine, Linköping University, Sweden held an inspiring talk about: "Progress and Challenges in Systems Biology Studies of Type II Diabetes" within the joint Lifenet and Soft Matter seminar.

After giving a basic introduction to systems biology and the knowledge that can be gained from theoretical modelling he concentrated on a specific challenge of this research field – the problem of handling complexity and overparameterisation. Cedersund developed techniques to identify those predictions that have to be necessarily fulfilled to generate a model that complies exactly with the experimental data. He denoted these uniquely identifiable properties as "core predictions".

In the second part of his presentation Cedersund concentrated on concrete projects related to type II diabetes such as recent developments in the characterisation of the insulin signalling network and their impact on multi-level modelling – from the cellular and organ to the whole-body level.

