

BIOPHYSICS NEWS

Editorial

Dear Colleague!

I am proud to introduce to you the second issue of "Biophysics News", which is dedicated to the 50 years of history of Biophysics Austria. This issue also introduces our series on Austrian Biophysicists and Young Investigators, intending to provide our members a broad platform to showcase their work. Let me thank all contributors for their great work and dedication to Biophysics in Austria. At the same time, let

me renew my call to become an active member of our society. Help us to realize a strong Biophysical Society in Austria that impacts the scientific landscape. Join us today!

Sincerely,
Georg Pabst
Biophysics Austria President

50 Years of Biophysics Austria

by Martin Hohenegger

Having returned from the first meeting of the International Union for Pure and Applied Biophysics (IUPAB) in Stockholm, Karl KAINDL and Helmut KNÖTIG rapidly organized a first general assembly on December 20th, 1961 to establish an Austrian Biophysical Society. Hans BORNSCHEIN, head of the Physiological Department (Univ. Vienna), was elected as first president. Kaindl and Knötig were members of the board, as was Karl Hermann SPITZY, inventor of high dosage ther-



Hans Bornschein
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apy with antibiotics. The society was then called "Österreichische Gesellschaft für reine und angewandte Biophysik"; the Austrian version of IUPAB. The society was quite ambitious in its early days, organizing joint meetings with the Swiss and German Biophysical Societies. The activities peaked in the organization of the second IUPAB



Engelbert Broda
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meeting (5.-9.09.1966, Vienna) and the first European Biophysical Societies' Association (EBSA) congress (14.-17.09.1971, Baden). At that time the society's name was changed to "Österreichische Biophysikalische Gesellschaft (ÖBG)". National and international speakers were invited on a regular basis covering the broad field of biophysics.

The biophysical and biological consequences of nuclear radiation were a big issue in the 1970s, cumulating in the plebiscite of 1978 against nuclear power plants in Austria. The ÖBG, under the leadership of Engelbert BRODA, was very much engaged in putting in this discussion on scientific grounds. Historically, it is interesting to note that Broda emigrated 1938—1947 to the UK, where he worked at the University Col-

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"This year the Austrian Biophysical Society celebrates its 50th anniversary. It is my pleasure to revisit the early days and to recall those responsible for the foundation of our society. I am glad to see life sciences bundling their strengths in Austria, taking up the tradition of the early days."



Martin Hohenegger
(Medical University Vienna)

BIOPHYSICS AUSTRIA PRESIDENTS:

HANS BORNSCHEIN	Univ. Vienna	1961-1967
JOHANN SCHEDLING	Univ. Vienna	1967-1970
ENGELBERT BRODA	Univ. Vienna	1970-1972
RICHARD BRUNNER	TU Vienna	1972-1981
MAX HOHENEGGER	Univ. Vienna	1981-1987
WOLFGANG SEILLER	Univ. Vienna	1987-1998
HELMUTH HORVATH	Univ. Vienna	1998-2004
MARTIN HOHENEGGER	Med. Univ. Vienna	2004-2010
GEORG PABST	Aust. Acad. Sci., Graz	2010-

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Helmuth Horvath, cycling to the Institute of Physics (University of Vienna).

lege of London on rhodopsin and later at the renowned Cavendish Laboratory (Cambridge) on radioactivity and nuclear fission.

1972 – 1981, the society was headed by Richard BRUNNER, well known for developing the first oral penicillin and a biotech-process for alcohol-free beer. From 1980 – 2000 a diversification of the scientific landscape took place in Austria and many small societies emerged. Possibly this was the reason why an interdisciplinary field

like biophysics had less reception. Helmuth HORVATH adopted the constitution to contemporary requirements and brought new ideas and members to the society. His successor, Martin HOHENEGGER successfully established the Austrian membership in EBSA 2009 and organized the first joint meeting with the ÖGMBT 2010. Today Biophysics Austria provides a multidisciplinary platform, promising interesting next 50 years. Happy birthday Biophysics Austria!

A Biophysicist's Portrait

by Gerhard Schütz

Christoph Romanin, JKU Linz

For my first portrait interview I selected a biophysicist who I know personally for many years, first as teacher, then as friend and colleague at the Biophysics Institute in Linz. Walking to his office, I reflected those 20 years.

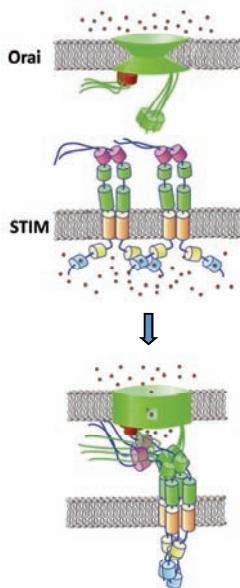
cus “Biosystems Analysis” at the JKU, and he was cofounder of the joint study on “Molecular Biosciences” together with the University Salzburg.

Already during my diploma thesis in the mid nineties I had scientific overlap with Christoph Romanin: we tried to measure single ion channels in the optical microscope, and Christoph was my advisor into the patch clamp technology. Single channel recordings were the core activity of his group at that time, he studied the L-type calcium channel. But Christoph wouldn't see himself as a developer of technologies, he is more interested in applying the technologies for understanding biology. So he considerably broadened his research spectrum over the years by setting up a molecular biology lab equipped with fluorescence imaging techniques, in particular to measure Förster resonance energy transfer (FRET). These techniques opened up again a comprehensive approach: By combining functional studies (via patch clamp), structural investigations (via FRET imaging), and structural manipulation (via molecular biology), Christoph and his group were one of the first to obtain a clear picture of the interaction between STIM and Orai, two proteins that are crucial for storage-operated calcium entry. This has become his main research focus.

Entering his office, I witness another aspect of Christoph's life and personality: he shares his work space with his students. When asked about his influence on his students, both as mentor and as teacher,

Fact sheet:

- Born on June 9th 1960 in Linz
- 1983: Diploma in Technical Chemistry at the Graz University of Technology
- 1986: Dissertation (Dr. rer. nat.) at the Karl Franzens University Graz
- 1993: Venia Docendi (Habilitation) in Biophysics, Johannes Kepler University (JKU) Linz
- Since 1986 at the Biophysics Institute of the Johannes Kepler University Linz, since 1997 Associate Professor.
- 2001-2005: chairman of the Biophysics Institute, JKU



Activation of calcium entry into non-excitable cells by coupling of the STIM and Orai proteins located in the endoplasmic reticulum with the Orai calcium channel.



My first encounter with Christoph Romanin was in a course he held on biological signaling. To me, this was an enormous subject: many different pathways, various mechanisms. During the course I got the impression that this is *his* topic; that was more than a lecture, it was the basis. Years later I realized that this basis goes far beyond research: Christoph thinks holistically, he likes to bring different aspects and people together, and he catalyzes their interaction. For example, he initiated the research fo-

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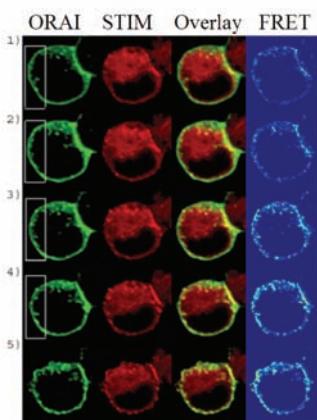
Christoph points out the importance of mentoring for PhD students: they have to come up with an idea about their life, in particular whether they want to stay in science. Looking around in Christoph's office, and knowing the frequent group discussions in his lab, I think that there is a lot of space in his group for mentoring. Science is also a strong aspect in his lectures, in which he attracts students with state-of-the-art results from the current literature.

I further talked with Christoph about his research, and the achievements he is most proud of. Without hesitation, he thought of his findings on the STIM-Orai coupling, which I know is ongoing work. I thought that this is probably the virtue of science, to fully appreciate what you are currently doing.

Researchers face challenges, and learning how to take hurdles belongs to the im-

portant experiences in the career of a researcher. I therefore asked Christoph about his biggest challenges. He immediately thought about the time when Hansgeorg Schindler, the founder of the Biophysics Institute at the JKU, passed away (28. August 2001). Christoph was willing to take the chair of the Biophysics Institute in these difficult times for four years. He devoted himself with great commitment to this position. However, this made it difficult to continue the research activities to the depths he wanted. Interestingly, he remarked that this forced intermission actually helped him getting on tracks again, on a – then – new topic, the STIM-Orai coupling, which turned out to become one of his most fruitful research areas.

Leaving Christoph's office, it reoccurred to me that one does not have to be flashy to be seen.



Stimulation of a T-cell induces a colocalization of Orai and STIM as observed by FRET.

Young Biophysicists in the Spotlight

by Klaus Groschner

Excellence of young academics is not only the basis of ongoing scientific productivity but also the prerequisite for favorable progression of a scientific discipline within a Society's national research landscape. Therefore, Biophysics Austria considers it as its most important task to promote the work and career development of our younger colleagues.

In this Newsletter, we start a series of introductory portraits of promising Biophysicists, who have just made their first steps into independent research, or are currently in the process of establishing their status as an independent investigator by applying for their own funding and/or for job posi-

tions. This transitional step is not only essential for a researcher's development, but represents at the same time a critical phase for Austrian academics, since in many cases the decision if a certain expertise will remain in Austria is made at this stage. With "Young Biophysicist in the Spotlight" we intend to provide an overview on the currently available expertise, as well as on the human resources by promoting our young colleagues within the Biophysical community. In order to establish a well balanced view, the Biophysics Austria team would appreciate help and input from our members in terms of suggesting suitable candidates for this portrait series.

Lilia Chtcheglova, Center for Advanced Bioanalysis, Linz

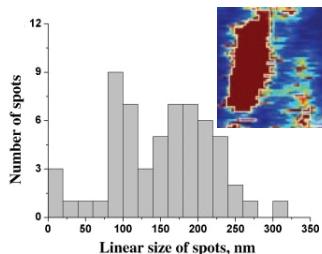
Lilia Chtcheglova is currently employed as a research scientist at the Center for Advanced Bioanalysis (CBL) in Linz. She received her Master degree in Physics from the Moscow M.V. Lomonosov State University in 1997. In 1999, she finished a second Master study at the University Louis Pasteur of Strasbourg in France and thereafter performed a PhD study in Lausanne at the École Polytechnique Féderale de Lausanne (EPFL), Switzerland, on the topic

"Quasistatic and dynamic force spectroscopy of single antigen-antibody complexes and fibrin-fibrinogen systems". Moving to Linz, she joined the Group of Peter Hinterdorfer and continued her work in the field of Force Microscopy. Besides her contributions to the development of novel, single molecule force-recognition strategies, her recent work on functional, life-cell imaging, in particular her studies with endothelial cells are remarkable in terms of bridging



Lilia Chtcheglova
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Characterization of VE-cadherin domains in endothelial cells by TREC imaging (from J Mol Recognit 23:598, 2010).

gaps between Biophysics and Cell Biology. Using these techniques a detailed structural and functional picture with so far unprecedented resolution was achieved. Specific high affinity binding sites for receptors were localized with 5 nm lateral positional accuracy, using the newly developed AFM-based TREC (Topography and RECognition) imaging technique. These receptor maps

are undoubtedly of high value for unravelling physiologically and medically relevant questions.

Lilia Chtcheglova is a highly promising young researcher who is expected to significantly contribute to the development of the Austrian Biophysics landscape during the upcoming years.

Meeting Austrian Biophysicists in Baltimore

Every year many of us travel to the U.S. to attend the largest meeting in Biophysics. This year the annual meeting took place in Baltimore (MD) from March 05 - 09, 2011.



We thought that this could be a good chance to get in touch with conference attendees from Austria including those, who

spend their scientific life abroad. To our surprise and great pleasure we found ourselves in room 324 of the Baltimore convention center with about 25 scientists from Austria. We were happy to see a common vision of Biophysics in Austria. As a result of the discussion we aim to publish the scientific profile of groups on our webpages in order to assist the formation of Austrian research networks. Another interesting idea to pursue was a common master study in Biophysics in Austria.

The meeting concluded with a relaxed visit to a nearby restaurant. We thank everybody for the fruitful discussion and for encouraging us in our work. Let us have this as a regular event!

Announcing the Second Annual Meeting



September 29th, 2011 the second annual meeting of Biophysics Austria will take place at the University of Applied Sciences (Fachhochschule) in Puch near Salzburg. The meeting will be co-organized with the Austrian Association of Molecular Life Sciences and Biotechnology (ÖGMBT) annual meeting Sept 28—30, 2011.

The meeting in Salzburg officially marks the 50th anniversary of the society (see

leading article). We will celebrate this event with a 3 hours session on Biophysics followed by a dinner party. We already have confirmations from two exceptional keynote speakers. Further, the live-band playing at the dinner party will enchant you with a unique combination of biophysical sciences and art.

Looking forward to seeing you in Salzburg this fall!

Imprint:

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Upcoming Events

- 8th European Biophysics Congress
23.—27.08.2011, Budapest, Hungary. <http://www.ebsa2011.org/>
- 8th Liquid Matter Conference
6.—10.09.2011, Vienna, Austria. <http://lmc2011.univie.ac.at/>
- ÖBG/ÖGMBT Annual Meeting
28.—30.09.2011, FH Puch/Salzburg, Austria. <http://www.oegmbt.at/>
- 17th International Biophysics Congress (IUPAB)
30.10.—03.11.2011, Beijing, China. <http://www.17ibc.org/>