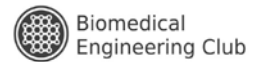


BME NEWS



Grand Prix 2012

While the Grand Prix Eurovision Song Contest in Baku is yet to come, the famous Grand Prix of Bern has already taken place.



The two BME Club Team (from left to right, from top to bottom): Matthias Peterhans, Patrick Roth, Christian Güder, Ishan Shah, Juan Anso, Daniel Lachner, Tom De Bruyne, Lukas Kohler.

May 13, 2012. Yesterday, we ran the GP Bern. It was super! I would recommend it to everyone who is willing to get a new feeling for the city and the culture. The city was wonderful, super alive, with music and people on every corner. Then at the *Tierpark*, a more mystic feeling, less noise and also allowing the runners to actually feel even closer to the other runners and to their own feelings. Over the course of the last kilometer, the whole effort was rewarded with a very warm ambience created

by the people waiting for us. Despite pouring rain, despite an awfully wet spring day, they were supporting all the runners.

It was a fantastic experience. I enjoyed it very much, just like a child! The city was *wunderschön*, Bern – a magnificent scenery for such a run.

*Text: Juan Anso, BME student
Photo: Tom De Bruyne, alumnus*

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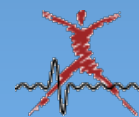
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Swiss IEEE EMBS Chapter
www.biomedeng.org

Check out the IEEE web page for information about their guest lecture series. www.biomedeng.org



Visit the SSBE website for current activities and www.ssbe.ch

Get connected



"Those were good times,
the years in Bern."

Albert Einstein

When BME students become BME alumni

BME graduates attended the solemn graduation ceremony of the Medical Faculty

On March 24, the Medical Faculty of the University of Bern held their graduation ceremony at the *Kultur Casino* in Bern. Together with their families and friends, the BME graduates celebrated their diplomas in a great and luxurious hall. The *Medizinerorchester* entertained the audience with musical intervals between the speeches. After an enthusiastic speech by Prof. Dr. Benedikt Horn, the Biomedical Engineers received their Master Diploma. For the first time, Prof. Zysset, the new program director of the Master Course in Biomedical Engineering and follower of Prof. Nolte, handed the diplomas to the graduates. This was the fifth graduation ceremony since the Master Course has started in 2006. In 2011, 34 students completed their Master's degree.

Ready to show their acquired skills, most of the engineers have already found a position in the industry, in research centers or other institutions. Even though not all graduates will work in the biomedical sector, the Swiss market place offers various interesting jobs for highly qualified engineers.



Philippe Zysset with Tom De Bruyne, Raphael Deschler, Timo Dietrich, Luaks Frei, Tobias Imfeld, Lukas Kohler, Daniel Lachner, Emmanuel Liechti, Yannick Lovis, Cherry Malonzo, Roger Mathys, Aymeric Niederhauser, Jonas Reber, Saloni Soin, Gregor Spreiter, Thomas Stübi, Fatih Toy, Andreas Treuholz, and Stefanie Uhl.

Text: Fatih Toy, alumnus
Photo: Tom De Bryune, alumnus

The new BME Club website

In summer 2011, I took over the position of webmaster and one of the Club's founding fathers, Frank Langlotz. During the years since the founding of our Club, Frank invested a lot of time to present the club on the internet and to create a database. For all the effort Frank put into the website we would like to thank him a lot!

With me as the new webmaster, the website was re-designed and got a new look. Together with Tom De Bruyne I created a new layout which is based on the color of our club logo. Over the course of several months, the website was improved step by step for the benefit of our members. At the end of March, we introduced an internal member area on our website: it allows each member to update his address and personal information, register for future club events, access job offers, and trade on the member market. You can access the member area via the login form on the left side of the main page. Students and all regular members who have paid their membership fee received their usernames and passwords after the launch of the member area.

How do you like the new web page? Send your feedback to webmaster@bmeclub.ch.

Text: Tobias Imfeld, alumnus

A new face at the ISTB

Philippe Zysset is the new professor for Musculoskeletal Biomechanics at the ISTB.

When and how did you start your career in this academic field?

Trained as an engineer in physics at EPFL, I worked one year as a research and development engineer in the MedTech industry and spent another year at Harvard Medical School in Boston as a research fellow in orthopedic biomechanics. These first two experiences motivated my academic career more than 20 years ago as I decided for a PhD in biomechanics instead of going to medical school. The following positions, namely a postdoc in orthopedic research at the University of Michigan, an assistant professorship at EPFL and a professorship in biomechanics at the Vienna University of Technology were the natural consequences of that original decision.



What are your areas of interest under the multidisciplinary biomedical engineering field?

My curiosity is continuously stimulated by the functional adaptation of the human body from the molecular up to the social level. This is an extremely broad and multidisciplinary area, but represents the actual scene of biomedical engineering. Diseases or impairments have to be understood at the molecular level, diagnosis and treatment are relying on more and more diverse technologies, while the patient's actual needs are embedded in a changing social and economical context. Since my expertise is in biomechanics, I had the opportunity to understand and help elucidate a few issues on the mechanical adaptation of the musculoskeletal system and to improve methods to compute bone fracture risk in osteoporosis. Beside basic and translational research, I enjoy sharing motivation and knowledge with students and researchers who in turn contribute to their propagation.

What was the main attraction/reason for joining the position in Bern?

From a professional point of view, the primary motivation was the opportunity to join a larger center of competence in biomedical engineering and establish closer relationships with committed medical faculties for transla-

tional research. From a personal perspective, the motivation was to bring my family back to its cultural roots and give my children an outstanding environment for their education.

Is the MedTech scenario here in Bern comparable to Vienna?

The answer is rather negative. Although Vienna is actively and successfully developing its life sciences, biomedical engineering is currently scattered in various engineering or clinical departments and does not rely on a dense network of small and medium size companies. In contrast, the university of Bern managed to create strong interdisciplinary competence centers in artificial organs, clinical research, surgical technologies and biomechanics that are closely related to clinical practice and the local MedTech industry.

What is your special message to the budding biomedical engineers here in Bern?

Citing Thomas Edison, “ingenuity requires 1% inspiration and 99% perspiration”, this is especially true for biomedical engineering that involves different communities with different perceptions. My message is therefore to work hard and focused, relax from time to time to leave space for novel ideas and take good care of the professional network to pursue the development of creative and ethical solutions that privilege cost-effective patient benefit.

*Questions: Prabitha Urwyler
Answers: Philippe Zysset*

BME lecturers in Le Locle

Although the sun was timidly shining on the 9th of February 2012, the day was freezing cold. We went from Bern Wankdorf train station towards Neuchatel to pick up the other lecturers and headed to Le Locle for the annual lecturers’ event, organized for the third time. Snow covered Le Locle, although at an altitude of nearly 1000m, surprised us with a pleasant temperature of -1°C; it felt almost like spring!

We were welcomed in a cosy room by Juergen Burger, who introduced the complex Johnson and Johnson company group, showing us many different products, interests and technologies this company has developed and acquired over the years – from a traditional baby shampoo to neurological implants.

J&J is the 4th world largest employer in the US, consisting of over 250 companies in 60 countries. And it all started with a Bandaid! The list of companies that were ultimately acquired under the J&J and DePuy umbrella is rather long. One interesting detail was the collaboration between Medos and Tissot which resulted in the development of a hydrocephalus shunt. This brought about the reason for the presence of J&J in Switzerland – quite simply: a famous high precision microtechnology environment, well-known universities, vicinity of subcontractors, an easy communication with authorities, and finally cantonal support.

After being swapped by the diversity of J&J activities, Yves Girardin presented the MedStream Pump from Codman. MedStream is the first programmable infusion pump for the treatment of chronic pain and muscle spasticity. The pump is in direct contact with cerebral fluid, placed in the peritoneum, has a lifetime of 8 years, and does not require frequent battery exchanges due to low energy requirements. The control unit is implanted under the skin in a 20 minutes operation. The engineering started in 2003 and it was approved in 2008 in the EU, and in 2010 in the USA. With 500 patients already operated, the target is 15’000 yearly.

The next presentation was about Certas, a programmable valve for the patients suffering from hydrocephalus, known as water in brain as a consequence a buildup of cerebrospinal fluid inside the skull that leads to brain swelling. The patients suffer from an increased intracranial pressure inside the skull and progressive enlargement of the head, convulsion, tunnel vision, and mental disability. Hydrocephalus can also cause death. The second

generation of Certas valve, approved in 2011 in the EU and in the US, is easy to program, with 8 different pressure settings, an indicator tool, and an optional attachable Bactiseal catheter containing antibiotics.

After a small refreshment break, we made two tours – the MedStream production tour and the titan workshop from Spine tour. The surprise was – labelling in French – unexpected at an American company, although in the heart of French-speaking Jura. We learnt that it takes 6 weeks to produce the MedStream pump. Starting with quality inspection of pieces coming from various suppliers, proceeding to subassembly (26 laser welding in 26 fixations including microscopic inspection of every step!), to mechanical testing, first round of packaging, sterilization, and final packaging. All electronics parts are done in a special dust-free clean lab, where you need to get electro-static discharge before you are allowed to enter. The pumps are produced in batches, depending on a phase in the production line, the number per batch ranges between 7 to 75 pieces.

Depuy Spine is the second largest spine company in the world, developing innovative orthopaedic and neurosurgical products that address key areas of spinal care, including cervical, aging spine, vertebral body replacement, minimally invasive surgery, and the emerging area of biologics. We observed the production line of beautifully colourful screws, each colour corresponding to the particular diameter and length. We were impressed yet again with various quality control points and instruments developed to ensure high quality. Each screw comes with a specification sheet and ready to use for the orthopaedic surgeon. We saw a newly acquired station for packaging and control, which allows time gain of several days, custom produced by a company Komax System AG from La Chaud de Fond.

The evening was already on its way, the J&J building in the dark surrounded by the fields of snow. With so much interesting novel information to process, our brain cells were in a prompt need for nourishment. Soon, we were driving to a small restaurant somewhere up in the woods above the lake of Neuchatel for a fondue. Few schnapps allowed for a lively atmosphere of scientific discussions as well as threats of loosing bread in the fondue and being punished according to Asterix and Obelix among *Helvetii*. With the lake being not so far and the temperature deeply below zero, the threat appeared rather scary! The drive back seemed quick, as we discussed possibilities on how to motivate more lecturers to join this nice event next year.

*Text: Dobrila Nesic
Photos: Prabitha Urwyler*



Trip to the MedTechExpo: MEDICA, Düsseldorf

15th - 18th November 2012



MEDICA, the world's largest med-tech trade fair, is a great place to gain an impression of the size and scope of the med-tech industry. MEDICA is an impressive stage of the global competition in medical technology and an ideal trend spotting venue for the medical profession. It is also a hub for unprecedented number of medical products, innovative technologies and novel therapeutical devices.

The BME Club is planning a group voyage to the expo by **train**. Overnight stay has been organized at the Youth Hostel in **Köln-Riehl**.



Journey	Date	Departure	Arrival
Onward (Bern – Köln)	15.Nov.2012	16:04	21:05
Return (Köln – Bern)	18.Nov.2012	09:55	14:56

Cost per person includes the train fare + 3 night stay at Youth Hostel incl. breakfast

Normal: CHF 300.- Half-Tax card : CHF 270.- GA: CHF 240.-

Registration deadline: 15 August 2012; limited space!



Next *Stammtisch*: July 10, 2012, 7 pm at Restaurant Beaulieu in Bern.

BME NEWS

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