MESSAGE FROM THE PRESIDENT: Damien Lacroix

Dear Members,

A scientific society only exists thanks to its members. For example the members make the organization of meetings possible and provide the liveliness within our ESB congresses. The ESB Council elected by the members is therefore aiming at expanding and improving the services offered to the membership. In the last 10 years both the membership and the services have increased substantially.

Our main service is the coordination of biennial congresses which have been very successful so far. The last one, held in Edinburgh, was a great success by providing a forum for interactions among participants to discuss current biomechanical matters (see p.3 for more details). Within that congress specific activities were held for student members to expand their extra-academic education and connection outside of their own lab. This interaction will continue through the Facebook account established by the ESB (http://www.facebook.com/search/?fcr=1&q=European+Society+of+Biomechanics). Other important events occurring during the congress are the presentation of the ESB awards to acknowledge the best biomechanical studies performed within our community. The Council will increase its focus on awards by creating two new awards: (1) the Aristotle Medal for Biomechanics that will be given to a researcher with an outstanding research track record in biomechanics, and (2) the Best Doctoral thesis in Biomechanics that will be given to an outstanding doctoral final thesis that has contributed to the advancement of the theory and/or applications of biomechanics (see p.4 for more details).

Due to the continuous growth of the Society in the number of members in all categories (active, student and corporate members), some major changes are required to keep pace with the scientific contributions within our community. This was already recognized a few years ago when it was decided to hold ESB workshops in odd years starting in 2005. These workshops have been successful but restricted to only a minority of the membership. Moreover, the size of the Society now enables us to hold congresses annually with a large participation as major other societies do. Therefore, as an exploratory process, the next ESB congresses will be held two years in a row. I believe that any member will consider the ESB congress as ‘THE’ meeting to attend annually because of the scientific interest. The next congress in 2012 will be held in Lisbon (Portugal) and will be organized by Paulo Fernandes (http://www.esbiomech2012.org). I can already announce to you that the congress in 2013 will be held in Patras (Greece) and will be organized by Yannis Missirlis. The Council will discuss at the next Council meeting (January 2011) whether we organize also a meeting in 2014 being the year when the World Congress of Biomechanics takes place in Boston. You are welcome to send me any comment on this before this meeting.

Meanwhile, in 2011 just the day before the meeting of the International Society of Biomechanics (ISB) in Brussels (3-7 July 2011), an ESB workshop on “Biomechanics in Minimally Invasive Endovascular Procedures” will be organized by Pascal Verdonck. This workshop and an ESB session in “Multiscale modelling of the skeleton” will reinforce the presence of the Society in this meeting with the participation of
many of our members to the ISB meeting (see p. 11-12).

At the last General Assembly of the ESB held in Edinburgh, two new Council members were elected (Anita Ignatius and Stephen Ferguson) and two Council members finished their two-terms (Ralph Müller and Marco Viceconti). I would like to thank Marco and Ralph (both President in 2006-2008 and 2008-2010 respectively) for their time devoted to the Society and the tremendous services that they have rendered in consolidating the growth of the Society. In that General Assembly the participants voted in favour of a change of the by-laws with the establishment of National Chapters within the ESB. These National Chapters are designed to support ESB members from the same country who do not have a national society of biomechanics in order to organize themselves at the national level. These Chapters should also provide a channel to increase the membership and also support the development of biomechanics research programs at the national level. The first country to apply for such Chapter will be Italy as detailed in p. 14. Due to the steady increase in members and because of some internal changes in the administration of processing of new members and monitoring of payment of ESB fees, the revenues of the Society are growing, putting us in a safe position in case something unexpected occurs. However, as a non-profit organization we need to make sure that the collected fees are serving the Society well. Therefore, professionalized services will be sought in the next two years to ease the management of the Society by the council such as the organization of the meetings, the management of the member database, the monitoring of the payment of the fees, the update of the website, the monitoring of the organization of the congresses etc… These tasks require a more professional structure for the size that the Society has reached. In addition to this professionalization and following the results of the members survey performed this year, we will improve the format and content of the Newsletter, we will continue to dedicate a large effort to attract and provide services to students, we will offer more journals at a reduced price, and we will try to offer any other service that you feel is of interest to the membership.

Another important objective of the ESB is to bring more visibility and improved consideration of biomechanics in the bioengineering field. Biomechanics must be strengthened and not be relegated only to a nice tool that is useful for the design of medical devices, for example. I will try to reinforce links with other societies and organizations, and build on the increase of the membership base, to put biomechanics into a stronger position with respect to other fields. Biomechanics must be considered as a leading player in the advancement of science.

In conclusion, the European Society of Biomechanics has never been so healthy but a lot of works remain to be done to effectively move from a relatively small community to a large player able to play a role in the bioengineering field. As usual any suggestion or feedback on the direction of the Society is more than welcome.

SAVE THE DATE: 18th ESB Congress, 1-4th July, 2012

The European Society of Biomechanics 18th Congress will be held in Lisbon, Portugal on 1st to 4th July 2012. Lisbon, the capital of Portugal, is a beautiful, historic city on the Atlantic Ocean. Lisbon has been a point of cultural interchange and encounter for many centuries for visitors and people coming from all over the world. It is a safe and pleasant city where delegates and their companions will feel at ease and will be very well received. Lisbon has a very good weather, in July is mostly sunny and dry, with mildly hot temperatures between 16°C to 30°C. Lisbon location and airport infrastructures make it easily accessible to visitors from all parts of the world. The conference will be held at Instituto Superior Técnico (IST), the Engineering School of the Technical University of Lisbon, and organized by an experienced team from IST chaired by Paulo Fernandes, João Folgado and Miguel Silva. All up-to-date information can be obtained at the congress website: www.esbiomech2012.org.
REPORT ON THE 17TH CONGRESS OF THE ESB:

Gwendolen Reilly and Amy Zavatsky

The 17th Congress of the European Society of Biomechanics was held on 4th-8th July at the University of Edinburgh, Scotland, UK, proving to be a beautiful venue for the highly successful conference.

The Conference was organised by a UK-wide scientific committee: Jimmy Cunningham (University of Bath), Bill Eason (University of Edinburgh), Hamish Simpson (University of Edinburgh), Mark Taylor (University of Southampton) and Amy Zavatsky (University of Oxford) together with a professional local organising team.

The congress was preceded by a series of tutorials organised by Amy Zavatsky and Richie Gill from the University of Oxford. These were aimed at graduate students, post-docs, and young researchers. Overall there were 60 participants, with most attending two tutorials. Dr Marco Viceconti, Prof Luca Cristofolini, and Dr Saulo Martelli from the Istituto Ortopedico Rizzoli and the University of Bologna presented a thought-provoking tutorial on “Innovative methods for the generation and validation of musculoskeletal models”. Dr Peter Hoskins from the University of Edinburgh and Dr Quan Long from Brunel University in the UK organised a tutorial on “Arterial Mechanics” which emphasized imaging and modelling of arterial disease. An overview of medical image analysis and state-of-the-art methods in image segmentation, registration, shape modelling, and validation methods was given in the tutorial on “Medical Image Analysis” by Dr Julia Schnabel from the University of Oxford. Dr Maarten Bobbert from VU University Amsterdam gave the “Muscle Mechanics” tutorial, an introduction to muscle mechanics, the construction of models of muscle-tendon complexes, and the utilization of such models in, for example, forward simulation of movement. Informal feedback on the tutorials both during and after the conference was positive, with participants commenting on the interesting and relevant topics chosen, on the quality of the presentations, and on the friendly way in which the presenters responded to questions.

The organisers offered a broad scientific programme with clinically-relevant topics ranging from cardiovascular modelling to fracture healing and basic science topics from animal biomechanics to cellular mechanosensing. The 340 podium presentations arranged in six parallel sessions were very well attended and initiated interesting discussions. Each day an eminent keynote speaker was featured and a keynote talk held in the impressive venue of McEwan Hall. On Monday Professor Peter Hunter, our furthest travelled speaker from the University of Auckland, New Zealand, talked about the progress of the Virtual Physiological Human project and how it is being used in biomechanics research. On Tuesday Professor Alison Noble from the University of Oxford discussed the role of imaging in in vivo soft tissue mechanics. On Wednesday Professor Allen Goodship from the Royal Veterinary College, London presented on overview of the role of mechanobiology in musculoskeletal regeneration and on Thursday Professor Duncan Dowson, from the University of Leeds presented his wide experience in the field of biotribology.

The Poster session on Monday evening was very busy with 250 posters being presented. Many delegates commented on the quality and variety of posters. It was followed by a welcome reception at McEwan hall with a warm welcome address by Hamish Simpson. Delegates clearly enjoyed the social events such as the Whiskey tasting and the conference dinner. The conference dinner was held at the Dynamic Earth science museum a striking modern building set against the geological backdrop of Arthur’s Seat; a vast volcanic formation including the basalt cliffs of Salisbury Crags and overlooking the Scottish Parliament and Holyrood Palace.
A great effort was made by the organizers to ensure that the football world-cup did not distract delegates from important conference events so the world-cup semi-final was incorporated into the dinner in seamless fashion.

The dinner was followed by a traditional Scottish Ceilidh and much fun was had by all.

Dancing at the Ceilidh

More photographs from the conference can be found at the conference website: [http://www.lifelong.ed.ac.uk/esb2010/photos.html](http://www.lifelong.ed.ac.uk/esb2010/photos.html)

PRIZES AND HONORS AWARDED at the 17th Congress of the ESB:
Jose Manuel Garcia-Aznar

S.M. PERREN RESEARCH AWARD:

**Foolen, J., van Donkelaar, CC., Soekhradji-Soechit, S., Ito, K. (Eindhoven, The Netherlands)** “An adaptation mechanism for fibrous tissue to sustained shortening”. The authors submitted an outstanding research work that was widely executed and well presented, clearly worthy of the S.M. Perren Award, the most prestigious Award of the European Society of Biomechanics. The interesting study concerned adaptation and organisation of fibrous tissues in a controlled environment. The authors demonstrated that periosteum is able to regain a mechanical equilibrium state in vitro, within three days after disturbance of that equilibrium state.


ESB CLINICAL BIOMECHANICS AWARD:


ESB TRAVEL AWARDS:

- Ivanka Veneva, Bulgarian Academy of Sciences, Bulgaria
- Jessica Deneweth, Henry Ford Hospital, USA
- Jinju Chen, Queen Mary University of London, UK
- Katharine Helen Fraser, University of Maryland School of Medicine, USA
- Luca Tersi, University of Bologna, Italy
- Mélanie Beaulieu, University of Michigan, USA
- René Aquarius, Radboud University Nijmegen Medical Centre, The Netherlands
- Daan Waanders, Radboud University Nijmegen, the Netherlands

Many thanks go to the conference sponsors:

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ESB STUDENT AWARDS:

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<td>1st Prize:</td>
<td>Friederike Anna Schulte, F.M. Lambers, D.J. Webster, G. Kuhn, R. Müller</td>
<td>Strain energy density predicts sites of local trabecular bone formation and resorption</td>
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<td>Runner up:</td>
<td>Claudio Capelli, F. Migliavacca, M.A. Taylor, P. Bonhoeffer, S. Schievano</td>
<td>Patient-specific analyses help to develop a stent for percutaneous valve implantation</td>
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<tr>
<td>Runner up:</td>
<td>Andreas J. Wirth, R. Müller, G.H. van Lenthe</td>
<td>Peri-implant bone microarchitecture strongly affects implant stability</td>
</tr>
<tr>
<td>Runner up:</td>
<td>Peter Westerhoff, A. Rohlmann, A. Bender, F. Graichen, G. Bergmann</td>
<td>In vivo shoulder joint loads during wheelchair propulsion on a treadmill</td>
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POSTER AWARD:

Ohayon J., Le Floc’h S., Finet G., Tracqui P., Cloutier G., Pettigrew Rl. (CNRS UMR 5525, France) “Young’s modulus reconstruction of coronary vulnerable plaques based on a segmentation-driven optimization procedure: influence of the intrinsic compressibility of the medium”.

NEW ESB HONORARY MEMBER:

At the General Assembly of the ESB, Professor Lutz Claes was elected as an Honorary Member of our Society. Ralph Müller, on behalf of the ESB Council, introduced Lutz Claes’ biography and accomplishments that can be summed up as follows:

Lutz Claes was born in 1944 in Nordhausen in Germany. In 1964-68 he studied Mechanical Engineering in Ulm and Munich. Then he returned to Ulm, where he established a biomechanics laboratory in the Department of Experimental Surgery at the University of Ulm. After completing his Ph.D. in 1977 he built up a laboratory for experimental traumatology in the Department of Trauma Surgery. In 1981 he continued his academic career by his Habilitation (qualification for teaching “Experimental Surgery” at the University). He became head of a newly established Section of Orthopaedic Research and Biomechanics at Ulm University in 1987 and received a professorship for Experimental Traumatology. He was rewarded a Chair for Orthopaedic Research and Biomechanics at the University of Ulm. In 1995 Lutz Claes became Director of the Institute of Orthopaedic Research and Biomechanics.

Lutz Claes always emphasized the broad interdisciplinarity of his team, which comprises engineers, biologists, molecular biologists, veterinarians, physicists, and computer scientists. The musculoskeletal research Lutz Claes worked on during his career mainly focused on fracture healing and fixation, biomaterials, cell biology, spine and joint biomechanics, and numerical simulation of bone healing. There were research projects in both basic and translational applied research in close cooperation with trauma and orthopaedic surgeons.

He authored and coauthored more than 400 peer-reviewed publications and received ten scientific awards. Lutz Claes was and still is member of numerous editorial boards of national and international journals. Lutz Claes was president of the German Societies of Biomechanics, Biomaterials, Spine Surgery, and the international Society for Fracture Repair. He was also a dedicated council member of the European Society of Biomechanics from 1984-88.
PRESIDENTS COMMEMORATIVE PLATES:
At the banquet of the ESB, previous Presidents received a co-memorial plaque acknowledging their important contribution to the development of the Society:

- F. Burny (B) 1982-1984
- S. Perren (CH) 1984-1988
- R. Huiskes (NL) 1988-1990
- P.S. Walker (GB) 1990-1994
- E. Schneider (D) 1994-1996
- L. Ryd (S) 1996-1998
- G. Van der Perre (B) 1998-2002
- P. Prendergast (IRL) 2002-2004
- K. Ito (CH) 2004-2006
- M. Viceconti (I) 2006-2008
- R. Müller (CH) 2008-2010

NEW AWARDS for the European Society of Biomechanics

Two new Award Categories are launched by the ESB focused on senior and young researchers:

**Aristotle Medal for Biomechanics**
- Candidate must have contributed significantly to biomechanics.
- Not restricted to ESB members.
- Candidate nominations submitted by at least two ESB members.
- Award consists of a medal and all expenses are covered.
- Invitation to present a plenary keynote lecture.

**Best Doctoral Thesis in Biomechanics**
- An outstanding PhD final dissertation.
- Selection based on the original PhD and related CV.
- ESB members when they apply for this award.
- PhD graduates have up to 3 years after the defense for submission.
- Award will consist of a certificate, 2,000 € and payment of registration and banquet fees.
- Additional information can be consulted on the ESB web page ([http://www.esbiomech.org/Section/esb-awards](http://www.esbiomech.org/Section/esb-awards)).

All the current ESB Awards are still available for the next Congress in 2012:

- S.M. Perren Research Award
- Clinical Biomechanics Award
- Student Award
- Poster Award
- Travel Award

NEW COUNCIL MEMBERS for the European Society of Biomechanics:

Two new council members were elected at the European Society of Biomechanics Annual General Meeting 2010 and two members were re-elected. The new council unanimously elected Damien Lacroix as the new president of the ESB and some members took up new posts within the council. Here we introduce the role and background of each council member:

**Damien Lacroix - President**
Damien Lacroix is a researcher at the Institute for Bioengineering of Catalonia. He received a Mechanical Engineering Degree from the National Institute of Applied Sciences (INSA) in Lyon, France in 1996. He then moved to Dublin (Ireland) and received a PhD degree from Trinity College in 2001. After working for Smith & Nephew within the Biomechanics Laboratory of Toulouse (Purpan Hospital), France, he was awarded a Marie-Curie TMR EU grant to work at the Technical University of Catalonia, Barcelona. He then received a ‘Ramon y Cajal’ fellowship from the Minister of Science and Technology of Spain and now heads a group in biomechanics and mechanobiology. His main research activities are in the development of computer simulations in tissue engineering, orthopaedic biomechanics, biomaterials and mechanobiology to model implant / cell interactions at the macroscopic and microscopic levels.
José Manuel García-Aznar - Vice-President and Awards committee
José Manuel García-Aznar is currently Professor at the Department of Mechanical Engineering, University of Zaragoza, Spain. He obtained his PhD in Computational Mechanics at the University of Zaragoza in 1999 and was a post-doctoral fellow at the Institute of Science and Technology in Medicine (University of Keele, England). He is a member of I3A (Aragón Institute of Engineering Research). His present research mainly focuses on Computational Modelling in Mechanobiology (mainly mechanics of hard tissues, mechanobiology of skeletal tissue regeneration and tissue engineering, tissue growth and development), Non-linear FEA and Multiscale and Multiphysics Analysis.

Gabriele Dubini - Secretary-General
Gabriele Dubini received his MSc degree in Mechanical Engineering cum laude in 1988 and his Ph.D. in Bioengineering in 1993 from Politecnico di Milano, Milan, Italy. In 1993 and 1994 he worked as a Research Assistant in the Cardiothoracic Unit, Great Ormond Street Hospital for Children – NHS Trust, London, UK. From 1996 to 2001 he was Assistant Professor of Thermodynamics and Heat Transfer in the Energy Engineering Department, Politecnico di Milano. From 2001 to 2007 he was an Associate Professor in Biomechanics in the Department of Structural Engineering, Politecnico di Milano, where he is currently a Full Professor. From 2003 to 2007 he was the Director of the Laboratory of Biological Structure Mechanics, Politecnico di Milano. His main research activities have regarded computational and experimental biomechanics. They have included the microcirculation, the fluid dynamic optimisation of paediatric cardiac surgery procedures, the design of endovascular devices, and microfluidic devices.

Hans Van Oosterwyck - Treasurer
Hans Van Oosterwyck is an associate professor at the Division of Biomechanics and Engineering Design, KU Leuven. He received an MSc in Materials Engineering in 1995 at K.U.Leuven and PhD at the same university in 2000. For part of his research on oral implant biomechanics he was awarded a Young Investigator Award from the IADR (International Association of Dental Research) Implantology Research Group (in 1999). As a postdoc his research focus shifted towards mechanoregulation of skeletal tissue differentiation. During this period he was a postdoc at the AO Research Institute in 2004. His current research focus is on the mechanobiology of bone regeneration and engineering, with an emphasis on mathematical modelling.

Stephen Ferguson - EAMBES Committee
Stephen Ferguson received his degree in Mechanical Engineering from the University of Toronto (Canada) in 1991 and was initially active as a consulting engineer. He received his Masters degree from Queen’s University (Canada) in 1994, with a focus on metallic and non-metallic implants for fracture fixation. His doctoral research on soft tissue mechanics and hip joint tribology was completed as a collaborative project between Queen’s University and the AO Research Institute in Davos. Following his PhD degree in 2000, he moved to the University of Bern where he leads the Biomechanics Division of the Institute for Surgical Technology and Biomechanics and is Co-Director of the ARTORG Spine Research Center. The focus of his group’s research is to improve our understanding of the causes of spinal disorders and to develop new treatment methods by combining knowledge from biomechanics and mechanobiology. He has been a member of the ESB since 2001 and co-chaired the 2008 meeting in Lucerne.

Anita Ignatius - Society and Chapter Liaison Committee
Anita Ignatius holds a PhD in Veterinary Medicine (1990). She started her research carrier at the Institute of Pharmacology and Toxicology, University of Munich, Germany, as a research assistant. In 1993 she changed to the Institute of Orthopaedic Research and Biomechanics at the University of Ulm, Germany (Director: Prof. Dr. Lutz Claes). For many years she headed the Biomaterials & Tissue Engineering Research Group as well as the Cell Biology Group in this institute. In 2002 she gained an Assistant Professorship for Experimental Surgery and Biomechanics at Ulm University. Her main research interests are mechanobiology in cells and bone, cell and tissue interactions with biomaterials, tissue engineering of bone, ligaments and intervertebral discs, and fracture healing. Recently (2009) she became Director and Chair of the Institute of Orthopaedic Research and Biomechanics, Ulm University.

Peter Zioupos - Meetings Chair
Peter Zioupos is currently a Reader in Biomechanics of Materials in the Centre for Materials Science & Engineering in the Shrivenham campus of Cranfield University in Oxfordshire, UK. He holds a Bachelors degree in Physics from the University Ioannina, Greece and a PhD in Bioengineering from the Bioengineering Unit of Strathclyde University in Glasgow, UK. His research...
interests are the: biomechanics/structural & material properties of ageing human bone; microcracking and the development of damage in hard tissues; tissue biomechanics in health, disease and other pathophysiological conditions. He is also interested in forensic evidence, impact and trauma biomechanics and is the Academic Leader of the Cranfield ‘Forensic Engineering & Science’ MSc degree.

Dominique Pioletti - Membership Chair
Dominique Pioletti is Assistant Professor at Swiss Federal Institute of Technology Lausanne (EPFL) and is currently director of the Laboratory of Biomechanical Orthopedics. He received his Master in Physics from the EPFL in 1992 and his PhD in biomechanics in 1997. Then he spent two years at UCSD as post-doc fellow acquiring know-how in cell and molecular biology. He was interested in particular in gene expression of bone cells in contact with orthopedic implants. His research topics include 1) the understanding of mechanotransduction in bone; 2) the development of orthopedic implants as a drug delivery system; 3) the tissue engineering of intervertebral disc; 4) the tissue engineering of bone.

Gwendolen Reilly - Publications Chair
Gwendolen Reilly is a lecturer in Tissue Engineering at the University of Sheffield, UK. She has a BSc in Biology and Geology from the University of Manchester and a DPhil (PhD) in Biology from the University of York. She has conducted post-doctoral research at the ETH in Switzerland and three US Universities; Penn State, University of Pennsylvania and University of Illinois at Chicago. These studies focused on bone cell mechanotransduction, bone and cartilage differentiation and biomaterials. She currently specialises in mechanical stimulation of tissue engineered bone and cartilage in 3D bioreactor culture.

William Taylor Student Chair
William Taylor is group leader of the team "Musculoskeletal Biomechanics" at the Julius Wolff Institut, Charité - Universitätsmedizin Berlin, Germany, and is responsible for the kinematic and functional analysis of subjects and patients for research applications. Through looking at particular aspects of human motion, his research focuses on understanding how the interaction of the anatomy and motion of musculoskeletal structures affects the internal muscle and joint contact forces.

A Message from Materialise:
Materialise is a corporate member of the European Society of Biomechanics. We encourage all corporate members to use the newsletter as a way to reach European Society of Biomechanics members. Here Materialise describes its newest software release and its technical uses

FEA for optimised patient care: Dimitri Vanlessen
An increasing number of clinical professionals are showing interest in the use of finite element analyses (FEA) to optimize the care for their patients. Currently, this is not yet common practice, but, when widely used, it can have a tremendous impact; e.g. the longevity of a load-bearing implant can be increased or the design of a heart valve could be improved. FEA can also play a key role in understanding pathologies and then selecting appropriate (and discarding ineffective) therapy. Besides, FEA can shorten the time-to-patient for implants, since it allows virtual design iterations and eliminates physical prototype testing.

With the latest release of the Mimics Innovation Suite, Materialise takes another leap forward in facilitating FEA-optimized patient care. The new Mimics 14 allows you to extract accurate 3D patient data (from CT or MRI) and subsequently use CAD-like functionality to design directly on this anatomical data. Combined with its meshing functionality, it enables the design and FEA optimization of patient-specific implants and devices.

Erik Boelen, Mimics Product Specialist: “The integration of CAD functionality in this Mimics release is of paramount importance in healthcare. One can use 3D patient data immediately as a basis for the design of either implants or guides. Optionally export it to any FEA package to optimize the design. This paves the way for patient-specific devices, with all associated benefits, ultimately leading to improved patient care.”

All ESB members play an important role in bringing engineering to clinical practice and educating surgeons about the significance of FEA for the future of healthcare; a future with patient-optimized implants and procedures.
STUDENTS CORNER:
ESB2010 in Edinburgh from a student’s perspective: Arzu Tasci and Silke Wüst, on behalf of the ESB student committee

The biannual ESB meeting 2010 in Edinburgh this year was again a nice opportunity to present our ongoing work and exchange ideas with other students and experts. Some of us even arrived on the Saturday night in Edinburgh in order to attend the Sunday tutorials before the conference. Four tutorials were given by invited speakers, which provided great opportunity to get more detailed information about specific topics. The conference itself was nicely located at the University of Edinburgh in the centre of the city, which provided a great atmosphere for the meeting. The staff could be easily distinguished by their Scottish red shirts and were friendly and helpful. Beside the work, Edinburgh offered many interesting sights and experiences, as expected: The Royal Mile, green hills, unique architecture with a lot of contrasts, including old castles and contemporary buildings. A must for everyone was Scottish Whisky in one of the multiple typical whisky bars and we also couldn’t miss the opportunity to try the national dish, haggis.

Student Social Events
With the ESB facebook group launched only a year previously, students have already started connecting and discussing events with each other. The ESB conference 2010 was the first possibility to finally meet many of the other active student members since the facebook launch. Two student events took place during the conference. The first was a speech from the former ESB president, Prof. Marco Viceconti.
Lunch was provided during the opportunity to hear his personal research journey, which was motivating, while also providing a helpful perspective for future researchers. At the end of this interactive session there was also the opportunity to meet and talk to other council members.

The second event was the student’s night. For this, a big screen was duly organized in the student’s union bar in Teviot House for the semi-final of the Soccer World Cup in South Africa. It was naturally a great evening for Holland fans but moreover a great chance for all students to enjoy. Overall the night was a great success enjoyed by Students and many who still felt like students, including a good number of free drinks.

One highlight of the conference was the conference dinner in the Dynamic Earth. It was a unique experience to have dinner in a such an impressive venue, followed by Scottish country dancing. Thanks must go to our Scottish colleagues, who, dressed in traditional kilts, demonstrated the moves for many of the more complex dances!

The ESB 2010 congress represented the end of Ralph Müller and Marco Viceconti’s mandate on the ESB council. The student committee would like to thank both of them for the great work they have done for the society and the support that we have received over their time with us. The ESB will face new challenges with Damien Lacroix as our new ESB president, and we would like to welcome Anita Ignatius and Stephen Ferguson to the council. Enjoy!
Changes have also occurred within the student committee this year, with new enthusiasm of our junior members a particular highlight. Here, Silke Wüst and Ali Sharifnezad have now joined the committee and already injected energy and enthusiasm in taking over the web site and events management.
At the end of the conference we had a lot of new ideas, a great experience and some new friends. Overall it was very encouraging for our own work. We are already looking forward to the next ESB meeting in Lisbon in July 2012! We hope to see you all there, and if there are any ideas or wishes for particular student events, then please get in contact with us. 😊
The European Society of Biomechanics is a member of EAMBES the “European Alliance for Medical and Biological Engineering & Science (EAMBES), www.eambes.org. The ESB has three delegates at the EAMBES General Assembly and the communication between the organisations is coordinated by the EAMBES liaison representative (stephen.ferguson@istb.unibe.ch).

The mission of EAMBES is to improve health, wealth and well-being of the people by the application of medical and biological engineering and sciences. The activities of the EAMBES include promotion and lobbying efforts to advance Medical and Biological Engineering and Science education, training, accreditation, research and development.

The EAMBES recently published a report on the state of the alliance. The following comprises the highlights of that report. "This past year has been a very important year for EAMBES. The alliance has been completely re-organised, according to the “resuscitation plan” that was presented in the previous EAMBES annual report. The Alliance is operated by a professional staff, a new Council will be soon elected, and the General Assembly called for March 2011 will give all representatives of member organisations the opportunity to influence the strategic objectives of the lobbying activities that are planned for the next year.

EAMBES appointed a part-time manager, who is also active in the European institute that is being formed by partners involved with the “Virtual Physiological Human” initiative, some of which are EAMBES members. The VPH institute will be an important strategic partner in EAMBES lobbying activities. In addition, the EAMBES web site was completely re-worked, with the goal to place most membership services on-line.

The lobbying activity has been completely re-organised according to the 2010 business plan approved by the General Assembly. The bottom-up strategy that involves direct lobbying of our members with commission services has been intensified, while in parallel a professional organisation, Rohde Publishing, was hired to assist in the top-down lobbying toward the European Parliament and the public at large. While the effects of the latter will be visible only in a few years time, the bottom-up action is yielding good fruits.

The ICT Microsystems unit of FP7 is more and more frequently funding projects targeting biomedical applications; biomedical projects are indeed the majority. The ICT for Health unit, in addition to the PHS program that sees the participation of various EAMBES members, published a second call on the “Virtual Physiological Human” where many biomedical engineering groups are involved, and a third call is already listed in the work programme for 2011. Also the “Future and Emerging Technologies” program, in its FET-proactive unit is exploring the possibility of developing future calls on multi-scale modelling of biological systems. Considering also those domains such as robotics or assisted living where bioengineering research is traditionally funded, the level of funding for biomedical engineering research in the ICT part of the FP7 is now excellent.

For the first time since FP5, the Health program is also calling for medical technology projects (“Health2011.1.4-2: Tools, technologies and devices for application in regenerative medicine”). EAMBES is working closely with the Health directorate to ensure that this is just the beginning, and that medical technology research returns central into the European Commission research strategy.

But in the near future the Biomedical Engineering community faces two major challenges. The first is related to the role of Biomedical Engineering in the Eighth Framework Program (FP8). It is the goal of the EAMBES to ensure that the biomedical target is recognised on its own in all fundamental ICT research. This is possible only if bottom-up and top-down lobbying are combined with a third type of lobbying, that which passes through EAMBES member institutions and their influence in the member states position on FP8.

The second challenge is much more difficult. While the funding for biomedical engineering research in FP7 is considerably better than in FP6, the term biomedical engineering is not used in the work programmes. Until now we have failed to push into the socioeconomic agenda of the citizens and governments of Europe our role in the society. It is therefore also the goal of the EAMBES to raise the public profile of the biomedical engineer and our role in the advancement of healthcare.

To meet these challenges, the EAMBES requires leadership, representativeness, financial resources, and influence. For 2011, the interim council of the EAMBES will be completely renewed through elections and will simultaneously be reduced from 18 to 8 representatives. The next General Assembly of the EAMBES will take place on March 15th, 2011 in Brussels.”

Marco Viceconti, EAMBES Executive Director

The full ‘EAMBES - State of the Alliance’ report is available as an appendix to this newsletter.
2011 ESB Membership Campaign:

By the beginning of November, you will be invited to renew your ESB membership. Similarly to last year, the 2011 membership campaign is organized electronically, following the web-based procedure that was implemented at that time. You will receive an email with a weblink that leads you directly to the membership renewal page. While going through the payment procedure you will be requested to check and, if necessary, update your personal and profile data. After completing the personal and profile data, you will be guided automatically to the payment webpage, where you can opt for either online payment (by credit card, through PayPal) or payment by bank transfer. In case of online payment, you will receive an electronic receipt upon completion of the transaction. In case you opt for payment by bank transfer, an email will be sent to you that contains all necessary bank details. Again, once we have received your payment, you will receive an electronic receipt.

If you have questions or if you would encounter any problems during payment, do not hesitate to contact the ESB treasurer at treasurer@esbiomech.org.

Being an electronic membership campaign, it is of course crucial that ESB has your correct email address. If your email address has changed, please update it in your personal data. You can update your personal data online (http://www.esbiomech.org/Account/modifyYourPersonalData) after login. If you forgot your username and/or password, please consult the FAQ at our website (http://www.esbiomech.org/Html/15).

The ESB offers reduced subscription to a number of journals (see below) for all membership categories. In order to ensure continuation of your journal subscriptions we would like to ask you to pay your membership and journal subscription fees before December 20, 2010.

Journal subscriptions – two more offers from T&F!

ESB is affiliated with the Journal of Biomechanics and Clinical Biomechanics, both published by Elsevier. As part of this affiliation, each member has the option to purchase a personal subscription. The fee for this subscription is a special reduced rate arranged between the ESB and Elsevier. The subscription is for both print and online access.

As for previous years, ESB members are also eligible to receive optional journal subscriptions at special reduced rates, arranged with Elsevier (The Knee, The Foot, Gait and Posture, Journal of Electromyography and Kinesiology), Taylor & Francis (Computer Methods in Biomechanics and Biomedical Engineering, Sports Biomechanics and Footwear Science) and Springer (Biomechanics and Modeling in Mechanobiology). Sports Biomechanics and Footwear Science are new titles for which reduced subscription rates have been recently agreed with Taylor & Francis.

Information on online access to Journal of Biomechanics and Clinical Biomechanics can be found on the ESB website (http://www.esbiomech.org/JBM-ESB.pdf and http://www.esbiomech.org/Clin%20Biomech%20online%20access%20to%20members.pdf respectively). For online access to Gait and Posture and CMBBE subscribers will be contacted directly and individually by the publishers.

Please remember that all journal subscriptions through the ESB must be treated as personal copies and cannot be used in libraries. Journal of Biomechanics and Clinical Biomechanics are included in the HINARI program (http://www.who.int/hinari/en/).

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<th>Journal subscription rate 2011 (VAT included unless otherwise stated)</th>
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<tr>
<td>Journal of Biomechanics (print &amp; online)</td>
<td>98 €</td>
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<tr>
<td>Clinical Biomechanics (print and online)</td>
<td>92 €</td>
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<td>The Knee (print only)</td>
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<td>Biomechanics and Modeling in Mechanobiology (print &amp; online)</td>
<td>95 €</td>
</tr>
<tr>
<td>Footwear Science (print and online) (new!)</td>
<td>80 € +VAT*</td>
</tr>
<tr>
<td>Sports Biomechanics (print and online (new!))</td>
<td>53 € +VAT*</td>
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* VAT rate to be confirmed by the publishers.

There is a membership poster available as a pdf in an appendix to this newsletter please print it out and post in your departments or institutes to encourage your colleagues to join ESB.
ISB2011: XXIIIrd Congress of the International Society of Biomechanics

There will be an ISB/ESB joint session on the Monday of the ISB congress on the theme of Multiscale Modelling of the Skeleton with a keynote presentation by past-president Marco Viceconti. Participants submitting an abstract to ISB who have an interest in taking part in the symposium should select ‘6 - Integrated Research’, when prompted to select an Approach and ‘73- Musculoskeletal Modelling’ when prompted to select a Topic in the ISB submission system.

Brussels, the Capital of Europe, will be proud to host the XXIIIrd Congress of the International Society of Biomechanics in 2011. Located at the very heart of Europe, Brussels offers many top attractions for leisure and cultural activities. ISB2011 will take place on the joined downtown Brussels campus of the Vrije Universiteit Brussel and Université Libre de Bruxelles.

We will be happy to welcome scientists and professionals from the various disciplines related to biomechanics, to which we will propose a high quality scientific program and enjoyable stay in Brussels.

ISB tutorials will be the opportunity for students and young scientists to enrich their knowledge on cutting-edge topics of biomechanics. The Congress will feature outstanding keynote lecturers, the traditional Wartenweiler Memorial Lecture, exciting award contests, as well as oral and poster presentations.

The spirit of the Conference will emphasize the multidisciplinarity of our research area and integrated research as a cornerstone in this interaction between disciplines. The Congress, together with a fine social program, shall be a cordial place to strengthen bonds between biomechanists around the world.

Important dates
- Paper submissions start: November 2010
- Registration Form: November 2010
- Deadline for submission of abstracts: January 20th, 2011
- Abstract decision notification: March 31st, 2011
- Tutorials: July 3rd, 2011
- Congress days: July 3rd – 7th, 2011

Call for abstracts
Abstract submission will be online only (www.isb2011.org). Contributors with accepted oral and poster presentations will be requested to submit a 2-page abstract (1 page text and 1 page of figures and tables) for the proceedings and a short mini-abstract (250 words plus one figure or table) for the program book. All guidelines for abstract preparation are available on the ISB2011 website. To ensure appropriate preparation of conference material, we kindly request that all contributors comply with these guidelines. Please also note that the deadline for abstract submission is strictly January 20th, 2011.

Scientific themes
The scientific program of ISB2011 will articulate around six approaches (Anatomy-oriented, Physiology-oriented, Clinically-oriented, Integrated research, Bioengineering, Modelling & Methods) that characterize research in biomechanics. Please check the ISB2011 website for the list of topics.

Registration

<table>
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<th>Registration fees</th>
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<th>After April 30th, 2011</th>
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<td>400 €</td>
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1 Member of ISB and ISB affiliated societies
2 Student rate requires presentation of a valid full time Student ID at conference badge pick-up

The fee will be charged in Euro (€). Please register through the online registration system that will be available through www.isb2011.org. Fees include meeting attendance, congress bag with the program book and all related documents (certificates of payment and attendance, badge etc.), lunches and coffee breaks, welcome reception on July 3rd, Belgian specialty events during poster sessions, banquet on July 7th and public transportation card for Brussels. Travel and accommodation are not included (please refer to ISB2011 website for information regarding accommodation).

Upon request, a letter of invitation will be sent. Please contact Steven Provyn for sponsoring and/or partnership opportunities: Steven Provyn@vub.ac.be
EUROPEAN SOCIETY OF BIOMECHANICS WORKSHOP/TUTORIAL: Biomechanics in Minimally Invasive Endovascular Procedures

3rd July 2011, Brussels, Belgium

This workshop is being organized by Pascal Verdonck and Gabriele Dubini and will be held the day before the International Society of Biomechanics meeting in Brussels. Information on the program schedule and abstract submission procedure will be sent to members as it becomes available.

More and more patients are today benefiting from minimally invasive, endovascular interventions on the arteries and veins from the inside. Blockages in the arteries or veins can be treated with balloon angioplasty, placement of stents, the use of clot-dissolving drug.

The tutorial will describe the striking progress of the engineering contribution to this successful evolution: new developments in vascular imaging and patient specific modelling including device design (stents, vascular access) will be illustrated. Also new company innovations will be addressed in the field of catheter, balloon and stent technologies.

ENDORSED MEETINGS:

EUROPEAN SOCIETY OF BIOMECHANICS MEMBERS RECEIVE A REGISTRATION DISCOUNT OR EQUIVALENT FOR ALL MEETINGS ENDORSED BY THE ESB. INTERESTED MEETING ORGANISERS SHOULD SUBMIT THEIR REQUEST TO PETER ZIOUPOS, MEETINGS CHAIR.

New advances in biomechanics for virtual human modeling:

A minisymposium organised as a part of the next International Conference on Advances in Mechanical Engineering and Mechanics (TSS ICAMEM 2010) in Hammamet, Tunisia, December 18-20, 2010.

The topics of the mini symposium will include:
- hard tissues experiments and modeling,
- soft tissues experiments and modeling,
- fluid-structure interaction,
- virtual human modeling (material and geometrical inter and intra individuality discrepancies, personalization of models...),
- traumatology, injury criteria assessment and advances in protection and safety systems.

The goal is to make a step forward in virtual human modeling, the prediction and the prevention of injury risks. Applied research may concern various fields such as crash safety, sport accidents and protection devices, ballistic injuries and protection devices, as well as blast injuries and protection devices. Your contribution should be submitted online using the conference website (http://www.icamem2010.org) following the instructions in the template file. A special rate is offered for ESB members who would like to attend the mini symposium. Don’t forget to mention that you are as ESB member and you will receive your two night stay in the 4 star El-Mouradi hotel, where the conference is to be held.

OTHER MEETINGS:

24th European Conference on Biomaterials
4th-9th September 2011, Dublin, Ireland
http://www.esb2011.org
(A joint ESB/ ESB symposium is planned)

Annual TERMIS EU Meeting 2011:
7th-10th June 2011, Granada, Spain
http://www.termis.org/eu2011/
(A joint TERMIS/ ESB symposium is planned)

35th Annual Meeting of the American Society of Biomechanics
Long Beach, CA USA August 10 - 13, 2011
http://www.visitlongbeach.com/asb2011

Computational fluid dynamics analysis (top) from structural analysis of the stent expansion (bottom). Courtesy of Morlacchi S., Chiastra C., Petriini L., Dubini G. and Migliavacca F., Politecnico di Milano, Milan, Italy.
Creation of the first National Chapter of the ESB – The to-be-formed Italian Chapter: Gabriele Dubini

The possibility to create National Chapters of the Society was approved by the General Assembly held in Edinburgh on 7 July 2010. In fact, due to the steady growth of the Society and the lack of biomechanics national societies in a number of European Countries, the Council had proposed to allow the Society members to setup National Chapters of the Society in every European Country in order to establish liaison agreements with existing allied national societies and to support the creation of national biomechanics societies by the members of the Society. The details for Chapter creation can be found in Article VII of the By-Laws of the Society - available at http://www.esbiomech.org/Section/statute-and-by-laws.

National Chapter creation will be possible on condition that: i) There is no national society of biomechanics in that Country already affiliated to the ESB or willing to affiliate and ii) There are at least five active members of the ESB registered from that Country who jointly apply for the creation of a National Chapter of the ESB. Approval from the Council of the ESB will be mandatory.

Italy is one of the European Countries where a National Society of Biomechanics does not exist. An informal poll among the Italian ESB active members carried out in January 2009 had already manifested that such a need was actually felt by the vast majority. A meeting held in Milan in September 2009 chaired by the Italian members of the ESB Council, Marco Viceconti and Gabriele Dubini, confirmed this sentiment. Thus it appears quite natural that Italian members will be the first to apply for the creation of the Italian Chapter of the ESB. Following the vote by the ESB General Assembly, the By-Laws of the Chapter were drafted and circulated among the ESB members with Italian nationality - 84 as of 23 September 2010 - and are ready to be submitted to the ESB Council, together with the formal application for the creation of the Italian Chapter. The process for election to the Board of the Italian National Chapter will be initiated immediately after the Council approval.

ESB on Facebook: Bill Taylor and Alessandra Carriero

In the previous edition of the newsletter we introduced the “European Society of Biomechanics” Facebook Group. This group has been created for all ESB members to promote active participation within the Society using the tools offered by Facebook as a progressive on-line forum.

To date, the ESB Facebook group accounts for over 50 members and has been used for academic positions posting, photos sharing and advertising online courses. For all active ESB Facebook members, please keep on using the ESB forum for exchanging relevant and up-to-date information, contribute to discussions & debates, add observations or comments, provide teaching suggestions or aids, or advertise jobs and academic positions.

For the ESB members who have still not signed up and wish to participate and use this opportunity to contribute to the ESB social and scientific community network, please log into your Facebook account (www.facebook.com) and simply type “European Society of Biomechanics” in the search field. After sending your request to join the group, your application will be rapidly processed by a member of the ESB committee. If you already have a personal Facebook profile you may wish to create a ‘work profile’ for activities such as the ESB group. The group is open and free to all the ESB members, so we would encourage you all to get on board and share your topics with the other members.

Using the ESB Facebook group is an interesting and easy way for ESB members to interact with colleagues, get feedback, comments and advice, and provide relevant news, such as new research topics, grants/awards, best poster/paper, images or ideas from your work. We have introduced a number of discussion events to allow a basic construction (we ask you to follow these as far as possible), but every member has the feasibility to create a new discussion subject within the ESB Facebook group. This will allow the ESB Facebook group to grow in a manner that fits its active members’ needs.

If you have any questions, issues or specific suggestions that you would like to discuss or propose to improve the experience of members within the ESB Facebook group, please feel free to contact Bill Taylor (student.chair@esbiomech.org) or Alessandra Carriero (a.carriero@ymail.com).

We wish you all an excellent continuation in your research activity and looking forward to seeing your active discussions on the ESB Facebook group.

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