



European Society of Biomechanics Newsletter

December 2006

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President's address

Marco Viceconti, Istituti Ortopedici Rizolli, Bologna, Italy

President of the ESB

They say a picture is worth a thousand words; but sometimes the right word can be worth a thousand concepts. I like to associate to the Presidency of Georges Van der Perre the word "regeneration"; to that of Patrick Prendergast the word "service"; to that of Keita Ito the word "growth". I hope that my mandate will be marked by another word: "consolidation".

It was Georges Van der Perre who recognised the need for a totally different approach in the conduct of Society affairs. Being smart, he started from the most important asset for a scientific society: the people. Under his Presidency, a new generation of Council members started to serve: relatively young, motivated, with good managerial skills.

Patrick Prendergast continued the work in this direction, strengthening the service profile. These young Council members were called to work hard to take the Society out of a moment of stagnation. I remember a nice day in the Summer 2002, in Calgary during the World Congress of Biomechanics. Patrick and Georges joined me at a table of a nice bar: "We want you to come back to the ESB, and candidate for the Council". This was a surprise: I had resigned from the ESB a few years before, after having written a public letter to the President, regarding the procedures used at that time to elect Council members. "We still disagree with your public letter, but we understand that you were motivated only by the will to serve, and this is the attitude the Society needs". He was right, of course. In my entire carrier, the community of peers has always been a central concept. It is my belief that the true concept of science relies on the establishment of a community of peers. This is why I always paid so much attention to the ESB.

After a lot of hard work under the Presidency of Keita Ito, we can say that this vision was correct. Thanks to all those who served in the Council and as committee volunteer in the last few years, the European Society of Biomechanics is enjoying a new life. The number of new members is constantly increasing, the finances are solid, and we are running a long list of programs that day by day realise the scope of our Society to foster biomechanics science and practice.

So now the goal is to consolidate. To make sure that this is not a special season, and that the positive trend we are observing will last for many years. But also to prepare this Society to manage efficiently the very large number of members we are quickly acquiring.

The new Council already has a fairly clear idea of what is necessary, in order to consolidate. We need to formalise the experimental bidding procedure we applied for ESB2008 and ESB2010, which was very successful; we need to consolidate the experiment of the ESB Summer Workshops, started experimentally in Leuven in 2005, and which will be repeated in Dublin next year. We need to consolidate all administrative and managerial services, starting with the web services for members. We need to sort out the issue of the legal incorporation of ESB.

But the most important consolidation activity for the next two years will be the revision of the statute and of the by-laws. These documents, that provide the legal and procedural foundations for our Society, were written many years ago, with a much simpler world in mind. They were revised a few times, and never truly maintained. As a result, they present inconsistencies

that must be corrected. Most problems are apparently minimal, but this is our foundation: if it is shaky, the whole building is shaky.

We are currently defining the procedure that will be used to revise the statute. For sure it will give the chance for any member to comment and debate any

possible change. So that when we present it to you in final form for approval at the next General Assembly, in Lucerne in the summer of 2008, this new statute will already be an old friend for most of you.

We count on you, our dear members and colleagues, for this delicate process.

Finite Element Modelling in Biomechanics and Mechanobiology

**Second ESB Thematic Workshop
26-28 August 2007, Dublin, Ireland**

The Trinity Centre for Bioengineering, Trinity College Dublin, will host the 2007 European Society of Biomechanics Thematic Workshop on Finite Element Modelling in Biomechanics and Mechanobiology.

The workshop will be structured around three main application domains, each with two subtopics:

Application of FEM to tissues and implants:

- Tissue mechanics (e.g. constitutive modelling of soft and hard tissues)
- Implants and medical devices

Advanced Applications:

- High-Resolution FE
- Patient-Specific FE

Using FEM in Mechanobiology:

- Bone Remodelling
- Tissue Differentiation

The workshop aims to provide students and interested researchers with an introduction to the application of the finite element method to biomechanics. It will combine a mixture of tutorial and state-of-the-art review lectures by leading researchers in each application domain along with the opportunity for research students to present their work in free papers. Furthermore, it is intended that special informal mentoring sessions will be held after the free papers in which students can seek advice from the leading researchers in their field of study.



Workshop venue: Museum Building in Trinity College

Organising Committee:

- Prof. Patrick Prendergast (Chair)
- Dr. Alex Lennon (Programme Chair)
- Dr. Danny Kelly
- Dr. Ciaran Simms
- Dr. Caitriona Lally
- Ms. Sheena Brown (Executive Secretary)

Submission and registration deadlines:

- Abstract Submission: by 30th April 2007
- Registration Form: by 30th June 2007
- Payment of Registration fee: by 30th June 2007

For further information please see website www.tcd.ie/bioengineering/esb2007.

16th Congress of the European Society of Biomechanics

6-9 July 2008, Lucerne, Switzerland

It is our pleasure to invite you to the 16th Congress of the European Society of Biomechanics, to be held July 6th – 9th, 2008 in Lucerne, Switzerland.

Drawing on the continuing success of previous meetings of the ESB, our goal is to strengthen the scientific basis of our traditional core topics while diversifying to include emerging research areas. A pre-course will draw on the extensive MedTech industry within Switzerland to bring you practical experiences which link the basic research world to final applications. Plenary talks are planned to address the current “hot topics” in biomechanics research, and to provide valuable insight into the ever-increasing

importance of collaborative research, interdisciplinary programs, EU funding opportunities and biomechanical education programs. Additional information will be available shortly on the conference website <http://www.esb2008.org>.

Lucerne is ideally situated in the centre of Switzerland, in the foothills of the Swiss Alps, and the surrounding region forms a historical and cultural focal point of the

country. The conference will be held in the recently constructed Culture and Convention Centre, located directly on the shores of Lake Lucerne. These facilities will offer you a modern conference experience in the environment of a true architectural masterpiece. Lucerne is easily reached by all major transportation

methods, and the city itself is compact and pedestrian-friendly. We will offer a comprehensive social program and Lucerne serves as an excellent stepping-stone for post-conference travels within the beautiful vacation land of Switzerland.

We look forward to welcoming you in Lucerne in 2008 and to a very successful and rewarding ESB meeting.



The famous Chapel Bridge in Lucerne, the oldest wooden bridge in Europe

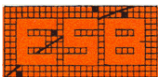
Yours Sincerely,

Stephen Ferguson
Lutz Nolte

Congress Chairmen

1976-2006: 30 years of ESB

Marco Viceconti, President of the ESB



Dear Members,

The summer is over, and also the World Congress of Biomechanics held in Munich is gone. Munich was a special appointment for our Society, which founded in 1976, celebrates this year its 30th Anniversary.

This letter is a way to close the celebrations of this anniversary, while providing you some additional information on the birth of the European Society of Biomechanics. What a better style than using the logo of the first letterhead of the Society, that Franz Burny, first Secretary General, still had in his drawer. If we need it, this is a concrete sign of the affection these

older colleagues still have for the Society they founded many years ago.

During the Banquet in Munich I gave a short speech to celebrate this event. But because of the emotion, the loud noise, and the lack of attention from the audience, possibly related to the beer ($p < 0.0001$), I am not sure the message went through. So let me repeat some of it.

In the summer of 1976 a group of farseeing scientists decided to establish the European Society of Biomechanics. With this act they created not only a scientific society, but also the foundations for the establishment of biomechanics as a recognised

academic discipline in Europe. In this sense, what European biomechanics is today is largely due to that decision, taken 30 years ago. You can find the list of names of our founders on our website (<http://www.esbiomech.org/Section/founding-and-goals>).

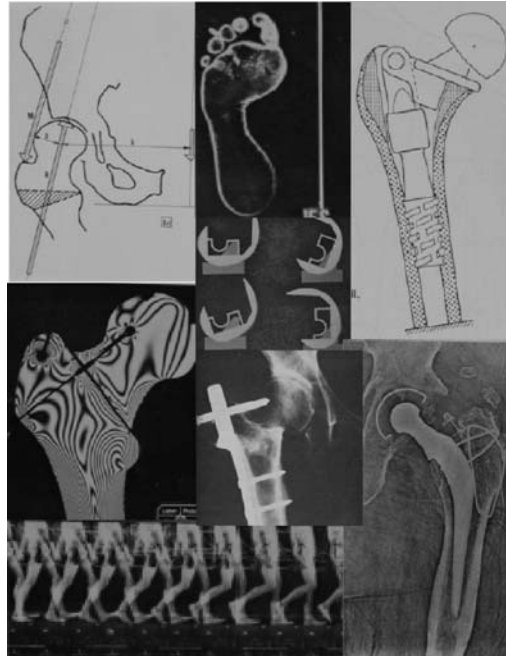
On behalf of all the members of the European Society of Biomechanics I want to thank all these colleagues for all the work they have done over these 30 years for the establishment and the development of biomechanics research and practice in Europe. If we see today a bit farther, it is because we stand on their shoulders.

At the banquet we assigned two ESB Service awards, to symbolically mark our belief that in order to survive and prosper any community must have the feet well grounded in the Past and the head pointing to the Future. The awards were given to Monique Donkerwolcke in recognition of the outstanding work she has done over these 30 years for our community, and to Sebastian Vermeersch, in recognition of his volunteer service as ESB webmaster.

Monique Donkerwolcke works since many years at the Université Libre de Bruxelles, and I am sure many of you know her. She has been an essential force for our Society from the very beginning. Eight years ago, when most of her colleagues were starting to plan their retirement and buying houses in Tuscany, she decided to join the ESB Council and to serve until August 2006 as Treasurer.

Sebastian Vermeersch is a PhD student in Cardiovascular Biomechanics at Ghent University. Although he is a very important person for our Society, I am sure very few of you know him. This is because Sebastian serves our Society in the background, working as volunteer Webmaster for our newly established and truly functional web site. You tend to talk to the Webmaster only if something does not work, and since our web server works very well, very few of you had the need to get in touch with Sebastian. Nevertheless, without his volunteer work everything would be much more difficult.

It was nice to meet so many of you in Munich. The Colleagues in Dublin are working hard to prepare the 2007 ESB Summer Workshop, while in Lucerne a significant effort is already allocated to the organisation of ESB2008, which I suspect will be the most attended ESB conference in our history. I hope to meet you during these events. Meanwhile please feel free to contact me or the other Council members for any idea, suggestion, and criticism around the management of our Society.



Illustrations, taken from the proceedings of the first ESB meeting, held on May 24-25, 1978, in Brussels. The full proceedings can be freely downloaded from our website.

With Sympathy,

Marco Viceconti

President of the European Society of Biomechanics

Report on the WCB / ESB meeting 2006

Georg Duda & Friederike Bleckwehl, Charité – University Medicine Berlin, Germany

ESB Meeting Committee

Mark Thompson, University of Oxford, UK

The 15th biennial meeting of the European Society of Biomechanics was held as an integrated, essential part of the 5th World Congress of Biomechanics in Munich, Germany, from 29th July to 5th August, 2006. The World Congress was hosted by the Institut für Biotechnik at the Munich University of Applied

Sciences under the leadership of Professor Dieter Liepsch. The World Congress received the sponsorship of the German State of Bavaria, and Professor Liepsch as chairman of the organizing committee, was assisted by Professors Gradinger and Berger.

In addition to the European Society of Biomechanics, the World Congress was co-sponsored by a number of international scientific organizations including the Biomedical Engineering Society, the American Society of Mechanical Engineering, the Biomedical Optical Society, SPIE, International Society of Biomechanics, European Society for Engineering and Medicine, the German Society of Biomedical Engineering, the International Society of Biorheology and the Japanese Society for Biomedical Engineering.

The World Congress organisers targeted their conference at a very wide-ranging definition of biomechanics, aiming to attract physicians, bioengineers, mechanical and aerospace engineers, clinicians in cardiology and other cardiovascular specialties, vascular surgeons, radiologists, neurologists, neurosurgeons, orthopaedic surgeons, specialists in areas such as bone, ligament, tissue mechanics, biologists, biochemists, biophysicists and biorheologists. In this aim they were successful as over 2,500 researchers and 55 exhibitors from 56 countries attended the conference.

The programme featured an ambitious number of parallel sessions from the 20 different tracks, with over 1800 scientific contributions. The European Society of Biomechanics, through the coordination of Professor Georg Duda, was responsible for the organisation of 4 of the main tracks: Bone Mechanics, Musculoskeletal Systems and Performance (jointly with ISB), Implants for Trauma and Orthopaedics and Biomaterials in

Biomechanical Applications (jointly with ESBiomaterials). In addition, papers for the ESB Perren Award, for the ESB Student Awards and for the ESB Clinical Biomechanics Awards were presented at special sessions.

The ESB met formally in the General Assembly, and, following the success of this initiative at s'Hertogenbosch, the ESB Booth was again provided as a way of increasing the visibility of the Society and attracting new members.



Scenic view on Munich

The sumptuous opening reception was held in the hotel "Bayrischer Hof" with speeches from the Bavarian Minister for Arts and Sciences, Dr. Thomas Goppel and also from Michael Teuber, the Athens Paralympics cycling gold medal winner. A full social programme was organised, the highlight of which was the conference dinner, held in the vast Löwenbräu Beer Hall, with a demonstration of Bavarian music and dancing in which some of the conference organisers bravely took part. The ESB organised a Student Lunch, giving young researchers the chance to interact with leading scientists

in their field, and an informal evening in the Augustiner Biergarten allowing ESB members to continue their scientific interactions in relaxed surroundings.

The 5th World Congress of Biomechanics provided an unrivalled opportunity to meet and network with large numbers of biomechanics scientists, and the ESB was well represented within this framework at a successful and rounded conference.

ESB Awards 2006

Ralph Müller, ETH Zürich, Zürich, Switzerland

ESB Vice President and Awards Committee

At the last Biennial Congress of the European Society of Biomechanics in early August 2006, the winners of the various ESB Awards were announced.

The meeting, which was held in conjunction with the World Congress of Biomechanics in Munich, drew a large crowd and with that a record in Award applications, especially in the Student and Poster category. The quality of the applications in that category was exceptionally high, which made it hard for the Award Committee to define the winners.

On another note, please mark your calendars already now: the **deadline** for the submission of papers in competition of the **2008 S.M. Perren Award** will be **December 1, 2007**. The S.M. Perren Award is the most prestigious Award of the Society and comes with a prize of 10'000 Swiss Francs sponsored by the AO Foundation. All the 2008 awards will be announced at the Biennial Meeting which will be held in beautiful Lucerne, Switzerland and hosted by the University of Berne.

Congratulations to all the winners!!!

S.M. Perren Research Award

Rommel G. Bacabac, D. Mizuno, A. Vatsa, C. Schmidt, F. MacKintosh, J.J.W.A. Van Loon, J. Klein-Nulend, T.H. Smit, (Amsterdam, The Netherlands) *Round versus flat: Bone cell morphology, elasticity and mechanosensing*

Laudatio: "The Award winning paper by Bacabac and co-workers present a precisely written summary of a well-designed study aimed at improving our understanding of the effects of cell morphology and elasticity on mechanosensing. The techniques described and developed by the authors and the resulting data provide a clear path forward for researchers interested in better understanding the physiological and pathological effects of cell adherence on cell structure and function set in the rapidly expanding field of cell mechanobiology. With the growing recognition by researchers in diverse disciplines that cell adherence has an important role in cell and tissue function, the work by Bacabac and coworkers provides a seminal investigation of the effects of cell morphology and elasticity on mechanosensing clearly worthy of the S.M. Perren Award, the most prestigious award of the European Society of Biomechanics."



Prof. Norbert Haas (AO Foundation, middle), hands over the Award Prize to the 2006 Perren Award winner Dr. Rommel Bacabac (right) during the award ceremony led by Prof. Ralph Müller (left).

ESB Clinical Biomechanics Award

Winner:

Ewen Northwood, J. Fisher (Leeds, UK) *In vitro investigation into the effects of uni and multi-directional motion on the friction, damage and wear of innovative chondroplasty materials against articular cartilage.*

Finalists:

Elisabetta Zanetti, S.S. Musso, A.L. Audenino, (Catania, Italy) *Femoral implants comparison by means of thermoelastic stress analysis.*

Jin Luo, D. Skrzypiec, P. Pollintine, M.A. Adams, D.J. Annesley-Williams, P. Dolan (Bristol, UK) *Changes in*

spinal load-sharing following vertebroplasty: effects of cement type, BMD and fracture severity.

Richard Cook, P. Zioupos, C. Curwen, T. Taker, (Shrivenham, UK) *Using peripheral quantitative ultrasound to predict fracture mechanics and compressive properties at the head of the femur*

ESB Student Awards

First prize:

Liesbet Geris, J. Vander Sloten, H. Van Oosterwyck, (Leuven, Belgium) *Mathematical modeling of bone regeneration including the angiogenic process*

Runner ups:

Eric Anderson (Cleveland, USA) *Idealization of pericellular fluid space geometry strongly influences the prediction of local stresses imparted by fluid drag on cell surfaces*

Evren Azeloglu (New York, USA) *Spatiotemporal heterogeneity of cardiac myocyte stiffness is greater during contraction than relaxation*

Alice Tomei (Lausanne, Switzerland) *Effects of cyclic compression on epithelial transport and viral infection in an engineered airway wall model*

ESB Poster Award

Margherita Cioffia, J. Küffer, S. Ströbel, G. Dubini, I. Martin, D. Wendt (Milano, Italy) *CFD model of mass transport with the microarchitecture of engineered cartilage during perfusion culture*

ESB Travel Awards

Antje Luchs, Martin-Luther-Universität, Halle, Germany

Andrzej Przybyla, University of Bristol, Bristol, UK

Merab Svanadze, Tbilisi State University, Tbilisi, Georgia

ESB Student activities at WCB

Sabine Bensamoun, UTC, Compiègne, France

ESB Student Committee

Damien Lacroix, Technical University of Catalonia, Barcelona, Spain

ESB Secretary-General

During the World Congress of Biomechanics in Munich, a dedicated lunch session for students was held and a mentoring programme for the ESB student members was launched. After the congress, a questionnaire was sent to the ESB students about their feelings concerning the congress in general, the student lunch, the mentoring program and so on. The overall satisfaction is the following:

- Most of the students had an excellent week in Munich and they found that the congress had very interesting tracks, they were able to meet new people and they got a lot of awareness. However, the ESB students had some remarks about the organization of the congress and especially about the poster session, which was not highlighted enough (difficulty to find them). It is difficult to compare the organization of a World Congress with the ESB biannual congress due to the difference in the number of participants. However, efforts will be made to provide better visibility in the following ESB congresses.
- The student lunch was a new initiative of the Student Committee and many students participated to this lunch. At that time, different topics were presented: how to prepare a presentation, how to write an article, and so on. The presentation about opportunities of funding for a postdoc position was a real success. One of the purposes of the Student Committee will be to improve this session and new topics such as grant writing will be added and presented by somebody from the European Commission. We have to admit that the quality of the lunch was not very good and this point will be

improved for the next European meeting. To socialize more this lunch, a list of the participants including their affiliations and the given presentations will be available on the student corner of the ESB web site.

- A mentoring program was initiated this year and fifteen Mentors-Mentees groups participated to this program. Most participants were very satisfied, although it was not so obvious to give everybody a mentor in his/her field of interest due to the limited number of participants. One of the purposes of the Student Committee will be to increase the number of mentors and mentees, and an open call will be made before the ESB workshop in 2007 and before the next ESB congress in 2008. This program could be a good opportunity to find a postdoc position, although we remind our ESB student that it is not a "ticket" for a postdoc position, but merely a means to expand their knowledge on the biomechanical field. It was not easy to fix a meeting between the mentors and the mentees. To arrange this event, we will invite the mentors and mentees to meet during the student lunch.

We would like to thank all the volunteers (Matthieu De Beule, Lies Geris, Benham Heidari, Sebastian Idelsohn, Rita Rocha, Bijay Giri) who worked actively for the different topics of the ESB students.

New ESB Council

Marco Viceconti

President

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Marco Viceconti has an MS in



mechanical engineering from the University of Bologna and a PhD from the University of Florence. He is currently the Technical Director of the Laboratorio di Tecnologia Medica of the Istituti Ortopedici Rizzoli, Bologna Italy, and the Chief Scientific Advisor of the BioComputing Competence Centre (B3C). His main research interests are related to the development and validation of medical technology for orthopaedics and traumatology. In his career he published over 120 papers, 80 of which are indexed in Medline. He is currently the President of the European Society of Biomechanics and member of the Council of the European Alliance for Medical and Biological

Engineering and Science (EAMBES). A strong advocate of collaborative science, Marco Viceconti is the promoter and animator of community initiatives such as the Living Human Project, the Biomed Town Internet community, and the EuroPhysiome initiative.

Ralph Müller

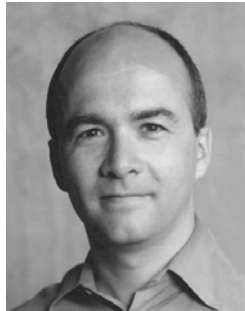
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Ralph Müller is an Associate Professor of Biomechanics at ETH Zürich. He received his Ph.D. degree in Electrical Engineering from ETH in 1994. In 1996, he moved to Boston where he served as a tenure-track Assistant Professor of Orthopedic Surgery at Harvard Medical School and the Associate Director of the Orthopedic Biomechanics Laboratory. Between 2000 and 2006, he was an SNF Professor of Bioengineering at the Institute for Biomedical Engineering, University and ETH Zürich. The research he has completed and is currently pursuing employs state-of-the-art biomechanical testing and simulation techniques as well as novel bioimaging and visualization strategies for biological tissues. Today, these methods are successfully employed for the quantitative assessment of structure function relationships in tissue healing, growth and adaptation. His approaches are now often used for precise phenotypic characterization of tissue response in mammalian genetics, gene therapy and mechanobiology. He is an author of 256 refereed journal and proceeding articles, 1 book, 42 chapters and reviews, and over 240 peer-reviewed abstracts. He has received a number of awards, including the Inaugural John Haddad Young Investigator Award (1998) from the American Society for Bone and Mineral Research (ASBMR) and Advances in Mineral Metabolism (AIMM) as well as the Promising Young Scientist Award (1999) from the International Society of Biomechanics (ISB). In 2004, he was named Young Leader by the American-Swiss Foundation. He is also active as an organiser of international symposia and working groups as well as a reviewer for scientific journals and funding agencies.



Damien Lacroix

Secretary-General

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Damien Lacroix is a Research Fellow at the Technical University of Catalonia in the Department of Material Sciences and Metallurgy. He received his Mechanical Engineering Degree from the National Institute of Applied Sciences (INSA) in Lyon (France) in 1996, and read his PhD from the University of Dublin (Ireland), Trinity College, in 2000. After working for Smith & Nephew at the Biomechanics Laboratory of Toulouse (Purpan Hospital), he was awarded a Marie-Curie post-doctoral grant to work at the Technical University of Catalonia. Recently, he has received a *Ramon y Cajal* grant from the Minister of Science and Technology of Spain. His research interests relate to computer simulations of mechanobiological processes applied to fracture healing, bone distraction and intervertebral disc, and also to design of orthopaedic devices.



Jimmy Cunningham

Treasurer

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Dr Jimmy Cunningham has worked in the area of biomedical engineering since 1985 at the Universities of Oxford, Durham, Bristol and Bath. Currently he is Reader in Biomechanics at the University of Bath. His basic interests lie in how bone repair and regeneration are influenced by the local mechanics and the quantification of these mechanical parameters. This research interests have produced work on the effects of the mechanical environment on fracture healing, distraction osteogenesis and physal distraction. Allied to this work has been the development of systems and protocols for the measurement of bone repair in-vivo. This has led to the investigation and application of a number of techniques (including vibration, ultrasound, mechanical loading) to describe the process of fracture healing in quantitative terms, which both enables a direct comparison of treatments to be made and can



also define when repair is complete or when it is delayed.

Sabine Bensamoun

Student Committee

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Dr Sabine Bensamoun received a PhD in Biomechanics at the University of Technology of Compiègne (UTC) in 2003. Then, she moved to the Mayo Clinic (Rochester, MN) to join the Orthopaedic Biomechanics laboratory as a research fellow. Two years later, she got a full time research position in the Biomechanics department of UTC. She started performing a fundamental work characterizing the mechanical and morphological properties of the musculoskeletal tissue (muscle and bone) at different levels. To achieve her research, she built many national and international partnerships. Her scientific approach is to associate the fundamental and the clinical research. Her training performed at the Mayo Clinic allowed her to apply her fundamental knowledge by conducting a study called Magnetic Resonance Elastography. Quantitative images of the elastic properties of normal and abnormal skeletal muscle were obtained. In parallel, she realized a fundamental study on the tendinous structure from knockout mice (TIEG). Back in France, she is a research collaborator with the Mayo Clinic. In addition to her implication in the different areas of biomechanics, orthopaedic physiology and bioengineering, she develops her teamwork and her competitive spirit with social events ("fête de la science", writer for ESB Newsletters) and the practice of tennis, respectively.

Georg Duda

Meeting Committee

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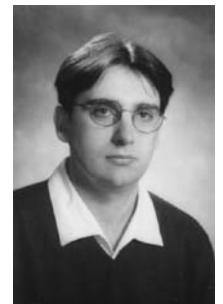
website: <http://www.charite.de/cmssc>

Prof. Dr. Georg N. Duda is head of the research lab of the Center for Musculoskeletal Surgery at the Charité – University Medicine Berlin, Germany and the clinical research group "Biomechanics and Biology of Bone Healing", funded by the German Research Foundation (DFG). Professor Duda is acknowledged for his work in the field of biomechanical aspects of musculoskeletal loading and bone healing. His work has been distinguished with several scientific awards such as the Gisela Strum Award from the Schulthess Klinik (2001), the S. M. Perren Award from the European Society of Biomechanics (2002) and the 1st Novel Award (2004). These awards recognise his work in developing new methods in determining the musculoskeletal loading conditions in healthy and injured and their influence on the biology of bone healing. Born and raised in Berlin, Professor Duda graduated from the Technical University, Berlin in 1991, after studying biomedical engineering. He began his career at the biomechanics laboratories of the Mayo Clinic, USA and of the John-Hopkins-University, USA, before he received his PhD from the Technical University of Hamburg-Harburg in 1996. He then continued his scientific work at the Institute of Orthopaedic Research and Biomechanics in Ulm. In 1997, Professor Duda returned to Berlin to become head of research at the Center for Musculoskeletal Surgery and Head of the Medical-Technical Laboratories at the Charité – University Medicine Berlin. Since then he has been successful in applying for a variety of research projects. Of special note are, beside the clinical research group, the AO Collaborative Research Center and the Musculoskeletal Research Center Berlin (MRCB), funded by the European Union.

José Manuel Garcia

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José Manuel García Aznar is Associate professor since 1996 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) in 2001. He received the Juan C. Simo Young Investigator Award by SEMNI (2004). He is a member of I3A (Aragón Institute of Engineering Research). His

present research focuses on computational biomechanics (mainly mechanics of hard tissue, mechanobiology of skeletal tissue regeneration, tissue growth and development), orthopaedic biomechanics and fractures of long bones.

Keita Ito

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Keita Ito is the Vice Director of the AO Research Institute in Davos, Switzerland. He is also a Professor in the Department of Biomedical Engineering at the Eindhoven University of Technology. After receiving his Doctor of Science in Medical Engineering and Medical Physics from the Massachusetts Institute of Technology (1994) and his Medical Doctorate from Harvard University (1995), he decided to concentrate on research and came to Europe for a post-doctoral fellowship at the AO Research Institute. This slowly evolved into the formation of a research group. Currently, he leads the Mechano-Biology Program focusing on the intervertebral disc and fracture healing. The group is an international and interdisciplinary collection of students, PhD, MD and DVM candidates as well as post-doctoral fellows and research scientists. They use a wide variety of methods including computational, in vitro and in vivo models to study the influence of the mechanical environment on the biology of bone healing and disc degeneration/regeneration. In addition to his teaching duties in the classroom and laboratory, he is on the editorial board of the Journal of Biomechanics as the Survey Co-Editor. He has been on the ESB Council since 2000 and was the President for the last two years.

Hans Van Oosterwyck

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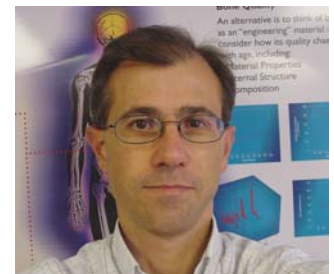
website: <http://www.mech.kuleuven.be/bmqo/>

Hans Van Oosterwyck received an MSc in Materials Engineering in 1995 at K.U.Leuven. In the same year he joined the Division of Biomechanics and Engineering Design at the same university and obtained his PhD 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 has been a postdoc at the AO Research Institute in 2004. In 2005 he was appointed a faculty position at the Division of Biomechanics and Engineering Design. His current research focus is on mechanobiology of bone regeneration and engineering, apart from an interest in dental biomechanics. He also lectures in courses on biomechanics and tissue engineering within the Masters Programme on Biomedical Engineering at K.U.Leuven. Since 2002 he has been the editor of the ESB Newsletter.

Peter Zioupos

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Peter Zioupos is currently a Senior Lecturer in the Centre for Materials Science & Engineering of Cranfield University in the Shrivenham campus 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; characterisation of the elastic, toughness and rheological properties of natural tissues, composites and biomaterials for biomedical, diagnostic, or restorative applications; properties of implanted or pre-treated biomaterials; failure of biological materials and study of the in-vivo mechanisms which may prevent it; natural design patterns leading to new, light weight, durable, resilient man-made materials through biomimetic approaches; anisotropy and modelling of soft tissue mechanics and the tissue mechanics of bioprosthetic heart valves. He is also interested in forensic evidence, impact and trauma biomechanics and he is the Academic Leader of the Cranfield 'Forensic Engineering & Science' MSc degree. He sits in the editorial board of the Journal of Biomechanics and Journal of Bionic Engineering. He is

SOCIETY NEWS

2007 membership

Included in this Newsletter you will find the invoice for the annual payment of the registration fee. Filled out forms must be returned to Jimmy Cunningham, the ESB Treasurer (either mailed or faxed; contact details provided on the form). Please do not forget to indicate your preference with respect to Newsletter delivery and journal subscriptions either in the attached form or in your member profile on the ESB web site (see below).

Newsletter delivery

About half a year ago we asked your opinion about the Newsletter, as to whether you prefer to have an electronic version only, or whether you prefer to still receive a printed version. All replies received before June 30, 2006 were counted, which led to the following results:

- 60% in favour of an electronic version only
- 40% in favour of a printed version (in addition to on-line version)

A total of 116 replies were received. As it was felt that this result (also with respect to the number of replies) was not sufficiently conclusive to decide for either of the two options, the Council has decided that from 2007 every individual member has the possibility of choosing his or her preference with respect to the Newsletter delivery. Therefore on your invoice you will be requested to indicate this preference. If you pay on-line, please select your preference in your personal data on the web site of the ESB (see below). From now on, this preference will become part of your personal data and it will determine the delivery for all future Newsletters. Only if you opt "Regular mail" delivery, you will receive a printed version in the future (at no additional cost). The money saved in this way will be used to subsidize activities and prizes at the ESB biennial meetings mostly geared towards our young members.

If for any reason you would like to change the Newsletter delivery option at a later date, it remains possible to do so, by logging in to the website and updating the personal data (see "Your Account"). By default it is now set to "Regular mail" for all existing members. For new applicants the default will be "E-mail only" (see also below for "On-line application").

2007 journal subscription rates

The ESB is affiliated with the *Journal of Biomechanics* and *Clinical Biomechanics*. Apart from these and other Elsevier journals (*Bone*, *Gait and Posture*, *Journal of Electromyography and Kinesiology*), members can

now also subscribe to *Computer Methods in Biomechanics and Biomedical Engineering* (from Taylor & Francis) at a reduced rate. The table below lists the special subscription rates for 2007.

Bone	€ 200
Computer Methods in Biomechanics and Biomedical Engineering	€ 63
Clinical Biomechanics	€ 90
Gait and Posture	€ 95
Journal of Biomechanics	€ 89
Journal of Electromyography and Kinesiology	€ 114

Please remember that all journal subscriptions through the ESB must be treated as personal copies and cannot be used in libraries. The subscription is for both print and online access. If you would like to take advantage of these options, please indicate so on your invoice (see also "2007 membership").

On-line application

The on-line application form has been updated with the following changes:

- Persons applying for student membership must provide the name and e-mail address of a supervisor. The contact details of the student members may change more rapidly, and therefore by being able to contact the supervisor it will be easier to trace the (former) student and keep our member database up to date.
- Applicants need to select their "Newsletter delivery option". By default for new applicants it is set to "E-mail only".

Corporate Membership

During the latest General Assembly on July 31, 2006 in Munich a new type of membership called Corporate Membership has been introduced. Any commercial group regardless of whether it is located within or outside Europe, which operates an enterprise with a significant contribution in the field of biomechanics shall be eligible to be a Corporate Member. Corporate Membership fee amounts to € 800. With respect to voting rights each Corporate Member shall have one vote to be cast by a person designated by the company. The new membership required a change of the by-laws, which was approved unanimously. More information is available on the web site (<http://www.esbiomech.org/Section/esb-leaflets>).

Interested companies can contact José Manuel Garcia (jmgaraz@unizar.es), head of the Membership Committee.

Endorsed meetings

The Society endorses related meetings for diffusion to its members and for the possibility for the organizers to use the ESB logo and the phrase "under the patronage of the ESB" in their printed materials. Proposals for endorsements must be submitted to the Meeting Committee Chair (georg.duda@charite.de).

The following future meetings are endorsed by the ESB:

- *4th Annual Research Meeting of Hellenic Association of Orthopaedic Surgery and Traumatology (HAOST):* 24-26 November 2006, <http://www.eexot.gr/>.
- *IMEchE Conference 'Engineers & Surgeons - Joined at the Hip':* 19-21 April 2007, London, <http://www.imeche.org.uk/events/>.

ESB2010

The bids for the organisation of ESB2010 were presented and evaluated during the Council meeting that took place on July 30, 2006 in Munich (last Council meeting of previous Council). The UK bid (promoters Jimmy Cunningham, Amy Zavatsky, and Mark Taylor) received most of the votes, and therefore ESB2010 will take place in Edinburgh (UK).

Proposals for future Workshops

With the second ESB Thematic Workshop being announced in this issue of the Newsletter, it becomes time to think about topics for future Workshops (in 2009). The ESB invites proposals for future Workshops. Interested members can send a proposal to Peter Zioupos (p.zioupos@cranfield.ac.uk), the chair of the Education Committee.

ESB representatives

The Council of the ESB appointed Marco Viceconti, Keita Ito, and Damien Lacroix to represent the Society in the Board of the Division of Societies of EAMBES (European Alliance for Medical and Biological Engineering and Science).

Ralph Müller and Georg Duda remain the representatives of the ESB on the Editorial Board of Journal of Biomechanics.

News about News

Communication between the Council and the ESB members is one crucial aspect for the viability of the Society and should clearly be "bidirectional". Therefore all members are invited to submit news items to Hans Van Oosterwyck, chair of the Publication committee. A new e-mail address has been created for this purpose (news@esbiomech.org). Depending on the content, News may be published in the Newsletter, on the website, or may be distributed by e-mail to all members.

New members

Since March 2006 we have had the pleasure of welcoming 51 new members:

The following persons joined the ESB as regular member: Vanessa Diaz-Zuccarini (United Kingdom), Dusan Simsik (Slovakia), Emmanuel Audenaert (Belgium), Malgorzata Figurska (Poland), Gweneth Henderson (United States), Michel Mesnard (France), Zahra Asgharpour (Iran), Jin Luo (United Kingdom), Marielle Bosboom (the Netherlands), Richard Cook (United Kingdom), Stefano Musso (Italy), Bart Verkerke (Netherlands), Amanda Wake (United States), Peter Hoskins (United Kingdom), Thierry Leloup (Belgium), Duncan Shepherd (United Kingdom), Nagananda Krishna Burra (Germany), Lucian Gruionu (Romania), Pérez Pedro (Spain), Dominique Pioletti (Switzerland), Xiao Yun Xu (United Kingdom), Matthias Bornitz (Germany), Ilse Jonkers (Belgium), Renato Natal Jorge (Portugal), Joao Tavares (Portugal).

Among the 51 new members 26 joined as student member: David Lentink (the Netherlands), Michael Messenger (United Kingdom), Egon Perilli (Italy), Ewa Bialoblocka (Italy), Mateusz Juszczak (Italy), Thomas Werz (Germany), Sebastian Vermeersch (Belgium), Carlos Diaz Novo (Cuba), Paul Heneghan (United Kingdom), Laurence Loumes (United States), Kerstin Bosch (Germany), Moahmmad Zubayer Ul Karim (Denmark), Alice Tomei (Switzerland), Eric Anderson (United States), Evren Azeloglu (United States), Margherita Cioffi (Italy), Antje Luchs (Germany), Silvia Wognum (United States), Matthew Fiedler (United States), Leonardo Peyré Tartaruga (Italy), Janine Boumans (the Netherlands), Matthew Haugh (Ireland), Waldo Rosales (Cuba), Anuphan Sittichokechaiwut (United Kingdom), Hanna Isaksson (the Netherlands), Kathryn Stok (Switzerland).