

European Society of Biomechanics  
**Newsletter**

June 2004

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## Call for Nominations to the ESB Council

**Keita Ito, AO Research Institute, Davos, Switzerland**

**Secretary-General of the ESB**

Dear Members of the European Society of Biomechanics,

The next General Assembly of the Society will take place at the 14<sup>th</sup> Conference of the ESB to be held in Den Bosch, the Netherlands, from the 4th to 7th of July (<http://www.esb2004.tue.nl/>). At this Assembly there will be elections for new Council members.

After many years of service to the Society, five Council Members will be stepping down: Patrick Prendergast (President, Ireland), Marie-Christine HoBaTho (Vice President, France), Hannu Aro (Student Committee, Finland), Dieter Liepsch (Meeting Committee, Germany), Romuald Bedzinski (Education Committee, Poland). Also my four year term will expire and I will stand for re-election. This means that six out of ten positions on the Council will be open for election (for the present Council, see <http://www.utc.fr/esb/>). This will be a unique and challenging opportunity to renew the leadership of the Society as well as to set a course for the next four years. I would encourage you all to consider the direction of our Society including the multidisciplinary and multinational composition of the Society. Above

all we are searching for individuals who would like to drive our Society forward for the benefit of our members.

The election will be by secret ballot at the General Assembly. Candidates may nominate themselves by e-mail to the Secretary-General, Dr. Keita Ito ([keita.ito@aofoundation.org](mailto:keita.ito@aofoundation.org)). They should include a brief CV and a note about what they feel they can contribute to the ESB as a Council Member. This information will be compiled and sent to members in advance of the General Assembly. Nominations will close three weeks before the General Assembly as prescribed by our By-Laws.

I look forward to meeting you in Den Bosch for what promises to be a well-attended and vibrant meeting of our Society.

With best regards,

Keita Ito

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# Membership: Quo Vadis?

Ralph Mueller, ETH and University Zuerich, Switzerland

Chairman of the ESB Membership Committee

Dear Member,

I am writing to you today in my function as the Chairman of the Membership Committee on the ESB Council. As you know, the role of transnational societies such as the European Society of Biomechanics is changing rapidly in this new era of European research and education. Up-until-now it seems to have been enough to provide members with a journal devoted to biomechanics and to hold a meeting every two years – and I am very much looking forward to our meeting in Den Bosch this July. Nevertheless, there is a sense that many of you would like the society to take a more active role, provide new services, and to support our members in their transition to a more globalized research and teaching environment. This is especially true when it comes to lobbying at the European level in order to compete for grants or to help facilitate and coordinate new educational programs relevant to our biomechanics community. Nevertheless, if we want to be recognized as an important partner for the Commission but also our National biomechanics societies, we will amongst other things have to work hard on increasing our membership. This will give us more weight when we go to European but also national funding agencies to ask for a better financial appropriation of biomechanics research. In this regard it is probably interesting to note that we have currently a little more than 300 members in the ESB but have typically 600 attendees at our bi-annual meetings, almost twice as many. The question is: Why are these people not ESB members?

We in the Council have been discussing this issue quite a bit and would like to make this a discussion point for the next General Assembly in Den Bosch. Of course we will need your input on this important issue and the possible changes that this might bring in the future. Here I would therefore like to inform you on three action items that we believe would allow us to increase the membership, make membership more attractive but also to base the society on safe financial grounds:

1. Over the last few months, we have been in close contact with the organizers of this year's ESB meeting in order to work out an offer for non-member attendees to become members of the society without further financial contributions. If a non-member

delegate chooses to apply for membership in our society and would be accepted by the General Assembly, the membership would be free for 2004 and 2005. This membership would not include automatic journal subscription. In return the meeting organizers agreed to transfer 60 Euro to the society for every new member actually attending and paying for the meeting as a non-member delegate. We believe that this could be a very successful way to increase membership and we are very thankful to the organizers that they allow us to do that. We also hope that you will be supporting this one-time promotion in order to increase our membership. We will be listening to your feedback and this will be discussed at the next General Assembly in more detail. Please come!

2. Another issue related to the action above is that the Council is rethinking the fee structure of the society. Currently, all members pay 90 Euro per year which may be considered high but what Members might not know is that more than two thirds of their contribution go to the subscription of the Journal of Biomechanics. We therefore propose to split up the membership fee in such a way that in the future there will be a lower annual membership fee and the subscription to the journal will be shown extra on the due sheet. We hope that this will make it more transparent for members what they are really paying for and the services one could expect for that amount of money. In that context it might actually be important to note that both the International Society of Biomechanics and the American Society of Biomechanics have already negotiated new contracts with Elsevier as the publisher of the Journal of Biomechanics that would allow their members to choose whether they want to subscribe to the journal or not. Although I am very much committed to keep my personal subscription for "our" journal, such a setup would probably make our society more attractive to students or other financially more challenged individuals. On the other side, this might have adverse effects on our journal. Again, since this is a very important subject, I am only informing you on possible options. There were no formal decisions made by the Council so far but the whole issue will be discussed at the General Assembly this year and we will hopefully have a vote on that. Your input is required!

3. The last point I would like to mention is that we should think about on how to better connect to our corporate colleagues out there. The Council is

therefore considering altering the statutes in such a way that a special category for corporate members will be included. This would allow corporations to better identify themselves with our society, to receive information, i.e. in the form of the newsletter, to send their employees to our meetings, and have a voice at our General Assembly to help shape our society for a better future.

I hope that in this report I was able to convey to you the Council's plans and ideas to attract new members

but also how this would benefit to you, our existing membership. If you are at the meeting in Den Bosch please come and see us at the ESB booth, where you will be able to talk to your Councillors in a more informal setting. In this context it is very important that you let us know your ideas on how to improve benefits for our members. In the interim, you can also contact me directly at [ralph.mueller@ethz.ch](mailto:ralph.mueller@ethz.ch) to share your ideas but also your concerns as an ESB member.

## BIOMECHANICS IN EC FUNDED PROJECTS

*After a short break we bring you more news on biomechanics projects, funded by the European Commission. Dr. Marco Viceconti, our EC Liaison for the ESB, has compiled a list of all biomechanics-related projects that have been supported by the Fifth Framework program of the European Commission – thank you very much to all the biomechanicians who have responded to Marco's call. If you notice that your project is still missing in the list below, please inform either Marco Viceconti ([viceconti@tecno.ior.it](mailto:viceconti@tecno.ior.it)) or Hans Van Oosterwyck ([hans.vanoosterwyck@mech.kuleuven.ac.be](mailto:hans.vanoosterwyck@mech.kuleuven.ac.be)) and send us your success story (about 200 words + one picture). We will be happy to include it in one of the next issues of the Newsletter.*

*We have the pleasure to introduce the first success story in this issue, brought by **dr. Christopher Nester** from the University of Salford, UK, who was the first to send us the data on his project, called **REAL-PROF**.*

### **REAL-PROF - Real world intelligent monitoring of prostheses and footwear (IST-2001/38429)**

*Financial information: Total cost 1,860,015 EURO, Commission funding 1,200,000 EURO.*

*Website: [www.realprof.eu.com](http://www.realprof.eu.com)*

The **REAL-PROF** project seeks to address the problem that there is no means of scientifically monitoring the performance of therapeutic footwear and lower limb prostheses in the real world. This makes the early detection of problems under the sole of the foot or on the stump impossible. Moreover, there are no feedback data for these medical devices, data which are imperative if improved designs and clinical performance are to be achieved. Within the scope of the project, previously unavailable gait data

from prostheses and footwear will be collected and interpreted.

In terms of biomechanics and gait data, the novel element of this project is the enrichment of the limited sensors data collected in the real world in order to estimate gait laboratory data. For example, the project is developing software which hopes to predict sagittal plane kinematics at the ankle, knee and hip from data describing only the 3D motion of the foot. Likewise, the software will aim to predict ground reaction force data using a small number of vertical and shear force sensors in footwear and pressure sensors in prosthetic sockets. This will provide a more complete data set from which to make decision regarding clinical management of gait, without the patient having to enter a gait laboratory.

*Co-ordinator contact details:*

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Centre for Rehabilitation and Human Performance  
Research

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University of Salford

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Tel +44 (0) 161 295 2275

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<b>Biomechanics-related projects funded by FP5</b>		
<b>Acronym</b>	<b>Contract</b>	<b>Home Page</b>
4D BODY SCAN	QLG5-CT-2002-71293	<a href="http://www.medizin.uni-tuebingen.de/sportmedizin/forschung/4d-body-scan.htm">http://www.medizin.uni-tuebingen.de/sportmedizin/forschung/4d-body-scan.htm</a>
ADOQ	QLK6-CT-2002-02363	<a href="http://www.medes.fr/ADOQ/ADOQHome.html">http://www.medes.fr/ADOQ/ADOQHome.html</a>
BETAPROTH	G5ST-CT-2002-50250	-
BIOGRAD	G5RD-CT-2000-00354	-
BIOKER	G5RD-CT-2001-00483	<a href="http://europa.eu.int/comm/research/industrial_technologies/27-03-03_bioker_en.html">http://europa.eu.int/comm/research/industrial_technologies/27-03-03_bioker_en.html</a>
BIOLOCH	IST-2001-34181	<a href="http://www.ics.forth.gr/bioloch/">http://www.ics.forth.gr/bioloch/</a>
BIONET	IST-2000-28074	<a href="http://www.mk.dmu.ac.uk/bione">http://www.mk.dmu.ac.uk/bione</a>
BITES	QLK3-CT-1999-00559	<a href="http://www.keele.ac.uk/depts/stm/bites/">http://www.keele.ac.uk/depts/stm/bites/</a>
BONECEM	QLK6-CT-1999-51155	-
CHILD	G3RD-CT-2002-00791	<a href="http://www.tu-berlin.de/zuv/IIIC/fordat/05/33/11073.htm">http://www.tu-berlin.de/zuv/IIIC/fordat/05/33/11073.htm</a>
COPHIT	IST-1999-14004	<a href="http://www.software.aeat.com/cfx/european_projects/cophit/index.html">http://www.software.aeat.com/cfx/european_projects/cophit/index.html</a>
DISC	G5RD-CT-2000-00267	
EVPSN2	G3RT-CT-2001-05074	<a href="http://www.passivesafety.com/">http://www.passivesafety.com/</a>
FID	G2RD-CT-1999-10559	<a href="http://www.wt.tno.nl/fid/">http://www.wt.tno.nl/fid/</a>
FRAFEM	IST-1999-20226	<a href="http://www.medicaltech.org/medical/">http://www.medicaltech.org/medical/</a>
GEMSS	IST-2001-37153	<a href="http://www.ccrl-nece.de/gemss">http://www.ccrl-nece.de/gemss</a>
HUMOS2	G3RD-CT-2002-00803	<a href="http://humos2.inrets.fr/">http://humos2.inrets.fr/</a>
IMLOAD	QLK6-CT-2002-02442	<a href="http://iaup.vlir.be/research/P/3M02/project3M020541.htm">http://iaup.vlir.be/research/P/3M02/project3M020541.htm</a>
INCOMED	G5RD-CT-2001-00533	<a href="http://www.mtm.kuleuven.ac.be/Research/Incomed/incomednav.htm">http://www.mtm.kuleuven.ac.be/Research/Incomed/incomednav.htm</a>
ISAC	IST-1999-20226	<a href="http://www.medicaltech.org/medical/">http://www.medicaltech.org/medical/</a>
ISY-DENT	QLRI-CT-2002-30627	-
JPD	IST-1999-20343	<a href="http://www.cineca.it/B3C/jpd.html">http://www.cineca.it/B3C/jpd.html</a>
JPD	IST-1999-20343	<a href="http://www.cineca.it/B3C/jpd.html">http://www.cineca.it/B3C/jpd.html</a>
MAPS	IST-2000-27519	<a href="http://www.ossur.com/maps">http://www.ossur.com/maps</a>
MIAB	QLK6-CT-1999-02024	-
MULTIMOD	IST-2000-28377	<a href="http://www.tecno.ior.it/multimod/">http://www.tecno.ior.it/multimod/</a>
ORCIS	Q5RS-CT-2001-01233	-
PRE-HIP	IST-1999-56408	<a href="http://www.3vm.it/prehip/">http://www.3vm.it/prehip/</a>
REALMAN	IST-2000-29357	-
REAL-PROF	IST-2001-38429	<a href="http://www.realprof.eu.com">http://www.realprof.eu.com</a>
SCAFCART	G5RD-CT-1999-00050	
SIBER	G3RD-CT-2000-00365	<a href="http://www.passivesafety.com/siber/">http://www.passivesafety.com/siber/</a>
SIMBIO	IST-1999-10378	<a href="http://www.ccrl-nece.de/simbio/">http://www.ccrl-nece.de/simbio/</a>
STEMGENOS	QLK3-CT-2002-02039	<a href="http://www.mds.qmw.ac.uk/rheumatology/stemgenos.htm">http://www.mds.qmw.ac.uk/rheumatology/stemgenos.htm</a>
STERNUMSUTURE	G5ST-CT-2001-50134	-
TUBA	IST-2001-32750	<a href="http://www.nmrc.ie/research/mai-group/bm-projects.html#tuba">http://www.nmrc.ie/research/mai-group/bm-projects.html#tuba</a>
VITES	G3RD-CT-2000-00312	-
WHIPLASH2	G3RD-CT-2000-00278	<a href="http://www.passivesafety.com/whiplash2/">http://www.passivesafety.com/whiplash2/</a>

# EAMBES: European Alliance for Medical and Biological Engineering and Science

Jos Vander Sloten, K.U.Leuven, Belgium

## Secretary-General EAMBES

### Background

The European Alliance for Medical and Biological Engineering and Science (EAMBES) was founded officially in Frankfurt, during a meeting of representatives of almost all national European biomedical engineering societies and a lot of academic institutes in July 2003. The initiative to create this new body has been taken under the impulse of the world organisation International Federation for Medical and Biological Engineering (IFMBE) shortly after the 1<sup>st</sup> European Medical and Biological Engineering conference (November 1999, Vienna) by creation of an ad-hoc committee charged with looking into ways to organise the European MBES interests under one umbrella. Since then IFMBE has strongly encouraged the formation of independent regional alliances such as EAMBES and promotes additional alliances in other parts of the world as well. IFMBE has also provided substantial financial support for the formation of EAMBES. It is the intent that, once EAMBES has been formally established and registered, it will apply for membership in IFMBE.

### Aims and objectives

The aims and objectives of the EAMBES can be summarized as follows:

1. Serve and promote MBES at European and International levels.
2. Foster, co-ordinate and provide added value to the activities of member organisations in MBES and collaborate, where appropriate, with national and international organisations, particularly the International Federation for Medical and Biological Engineering.
3. Serve and promote MBES education, training and accreditation programmes.
4. Serve and promote MBES research and development.
5. Establish recommendations for the appropriate general responsibilities, organisational relationships and roles of those engaged in the field of MBES.
6. Establish and maintain liaison with national and European governments and agencies.
7. Promote public awareness of MBES.
8. Improve intersociety relations and co-operation in Europe within MBES and related fields.

9. Encourage and assist in the formation of organisations in MBES where such organisations do not exist.
10. Recognise individual and group achievements and contributions to the field of MBES.

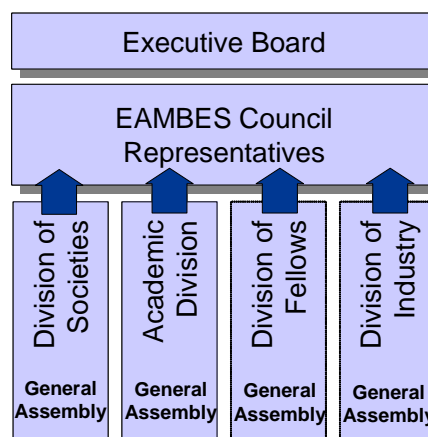
It is the explicit intention to add value to already existing national and transnational organisations for medical and biological engineering and science within Europe, and not enter into competition with any of them.

### Categories of membership

The categories of membership of EAMBES include:

- a Division of Societies, both National and Trans-European, with activities and interests in MBES.
- Academic Programmes or Institutions and Research Institutes.

Later on, also a Division of Industry and a Division of Fellows will be created. The Division of Fellows will only count a selected number of individuals, and for this reason candidate members will need to be nominated rather than being the result of spontaneous applications for membership. Other categories of membership can be created as the need arises.



*The structure of EAMBES*

Organisations of each Division constitute the General Assemblies of EAMBES and elect 16 representatives to the EAMBES Council. The EAMBES Council elects the Executive Board (President, Past-President, President-Elect, Secretary and Treasurer). Additionally, Divisions elect their Officers and

Division Chairs who are automatically members of the EAMBES Council.

#### *Executive Board and Council*

The first interim Executive Board of EAMBES has the following members:

- Niilo Saranummi, Finland, President.
- Jos Vander Sloten, Belgium, Secretary-General.
- Helmut Hutten, Austria, Treasurer.
- Joachim Nagel, Germany, Chair of the Division of Academic Institutions and Programmes.
- Joe Barbenel, UK, Chair of the Division of Societies.
- Jan Wojcicki, Poland.

At this moment, EAMBES has applied for registration as an international non-profit association according to Belgian law. The first official meeting of the EAMBES member representatives will take place during the Mediterranean Biomedical Engineering conference Medicon04 in Ischia, August 1-5. The European Society of Biomechanics has, since the first

steps towards the creation of EAMBES, always had a very positive attitude towards this new alliance and has endorsed the efforts made towards its foundation. Marco Viceconti, member of the ESB Council, has been elected as a member of the interim Council of the EAMBES.

Further information about EAMBES can be found at [www.eambes.org](http://www.eambes.org). This website also includes an application form for membership to the two divisions that are already operational: the Division of Societies and the Division of Academic Programmes and Institutes. The application forms can be completed on-line, they should be printed and signed and sent to me at the address below.

Prof. Jos Vander Sloten  
Secretary-General EAMBES  
Katholieke Universiteit Leuven  
Division of Biomechanics and Engineering Design  
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## ESB GOSSIP

In March 2004, **Dr. Delphine Perie** received a New Investigator Recognition Award from the Orthopaedic Research Society, San Francisco, USA (see <http://www.ors.org/>). The award was in recognition of her work on the effect of enzymatic digestion on compressive properties of intervertebral discs. Dr. Perie is currently finishing post-doctoral researches on spine bioengineering at the department of Mechanical Engineering at the University of Vermont, USA. Her research interests focus on the biomechanical characterization and modeling of the spinal musculoskeletal system using medical imaging.

The Royal Academy of Medicine in Ireland held the 10th Annual Bioengineering in Ireland in Limerick this year. The meeting was chaired by **Dr. Tim McGloughlin** (University of Limerick, Member) and the Conference included sessions on such diverse topics as Cell Mechanics, Tissue Engineering, Biofluids Modelling, Bone Mechanics, Orthopaedics, Bioelectronics, Stents and Biomaterials with more than 60 presentations and showed how vibrant Biomechanics research is in Ireland. The Samuel Haughton Lecture entitled "Interactive Robots and Recovery after Stroke" was presented by Professor Neville Hogan, Mechanical Engineering Department, Massachusetts Institute of Technology, Cambridge, USA. Amongst the delegates were the President of the European Society for Engineering and Medicine (Professor Clive Lee) and the President of the European Society of Biomechanics (Professor Patrick

Prendergast) both of whom are past Presidents of the Bioengineering Section of the Royal Academy of Medicine (RAMI).



*Prof. Patrick Prendergast (President ESB), Dr. Tim McGloughlin (Chairman, Bioengineering in Ireland 10), Prof. Neville Hogan (MIT), Prof. Clive Lee (President, European Society for Engineering and Medicine), Dr. Brendan McCormack (President, Bioengineering Section, Royal Academy of Medicine in Ireland)*

In February 2004 **Liesbet Geris** (K.U.Leuven, Belgium) and **dr. Murielle Verver** (TNO Automotive, the Netherlands) jointly received the 'Meditech and Welsh Develop Agency prize' for best student presentation at the Sixth International symposium on Computer Methods in Biomechanics and Biomedical Engineering (Madrid, Spain) for their presentations entitled 'Different mechanoregulatory models predict

different patterns of tissue differentiation' (co-authors H. Van Oosterwyck, J. Vander Sloten, J. Duyck and I. Naert) and 'Investigation of seat pressure distributions at the human-seat contact interface by analysis with a FE buttocks model' (co-authors C.W.J. Oomens, J. van Hoof) respectively.

**Prof. J. Joachim Telega** from the Polish Academy of Sciences (Warsaw, Poland) has edited a new book on Orthopaedic Biomechanics. More information on this book can be found below.

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## Announcements

### New books

**Orthopaedic Biomechanics, AMAS Conference Proceedings 5**, J.J. Telega (ed.), Warsaw, price: 40€ 453 pp., ISSN: 1730-1521.

This comprehensive volume contains selected papers presented during the Workshop "Orthopaedic Biomechanics" organized within the framework of the 13th ESB Conference, September 1-4, 2002, Wroclaw, Poland. The volume consists of two parts. The first part includes five general lectures whilst the second part presents seven largely extended contributed papers. More information on the content can be found on the **ABIOMED** website ([www.ippt.gov.pl/abiomed/](http://www.ippt.gov.pl/abiomed/)).

### Journals

**Interface** is a new international journal, edited by prof. William Bonfield (University of Cambridge, UK), which publishes contributions from the interface between the physical sciences and the life sciences. Interface welcomes articles on a diverse range of topics including, but not limited to: biocomplexity, bioengineering, bioinformatics, biomaterials, biomechanics, biophysics, chemical biology, medical physics, nanoscience and computer science (as applied to the life sciences), systems biology, theoretical biology and tissue engineering. Further details can be found on:

[www.pubs.royalsoc.ac.uk/interface\\_homepage.shtml](http://www.pubs.royalsoc.ac.uk/interface_homepage.shtml).

### European Network in Biotribology

A new initiative organised through the European Science Foundation COST programme has created a network for the orthopaedics industry, and researchers and clinicians with an interest in improving the clinical wear performance joint replacements and associated therapies for natural synovial joints.

This European network was launched in April 2004 when it was agreed to establish four Working Groups

in areas of key significance for new developments in biotribology. These are shown below with the names of the Working Group co-ordinators:

1. Enhanced Crosslinked Polyethylene in Hip Joints (Claude Rieker and Jose L. Peris)
2. Alternative Hard Bearings for Hip Joints (Amaya Igartua and Haralambos Lefakis)
3. Biotribology of Artificial Knee Joints (Claude Rieker and Haralambos Lefakis)
4. Therapies for the Natural Synovial Joint (Georg Duda and Amaya Igartua)

The COST programme is able to support attendance of members of the above working groups to meetings of the group and also to sponsor events associated with biotribology. Further information on COST can be found on <http://cost.cordis.lu>.

Individuals with an interest in biotribology are invited to join the above working groups. Those groups that attract sufficient participation intend to hold an initial start-up meeting to coincide with the 14<sup>th</sup> ESB conference in 's-Hertogenbosch on July 4<sup>th</sup> – 7<sup>th</sup> 2004. Working group participants from countries affiliated to the programme can receive travel and subsistence costs to attend their meeting.

If you would like to register your interest in joining the new European Network in Biotribology you should contact John Egan at the address below and:

1. Send your contact details
2. Describe briefly your area of interest
3. Identify your preferred Working Group(s)

John Egan  
BITE CIC  
3320 Century Way  
Thorpe Park  
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e-mail: [john.egan@bitecic.com](mailto:john.egan@bitecic.com)  
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Fax +44 (0) 1132 840 211



International Conference

# Knee Arthroplasty: Engineering Functionality

Royal College of Surgeons, London

7-9 April 2005

Total knee replacement is the preferred option for the surgical management of the arthritic knee in the over 65's and although it enjoys considerable success, there is room for improvement. Although survivorship rates are impressive, there is a need to improve function, to reflect the increasing demands of patients. There is also a need to increase the repeatability of the procedure to try and reduce variability in the post-operative kinematics and enhance the long term performance. Significant challenges need to be addressed in the treatment of young arthritic knees, where often only a single compartment is affected and where early intervention with a small device is preferable. These drivers are leading to developments in computer assisted and image guided surgery, as well as radical new designs for implantation using minimally invasive approaches.

Themes that will be covered include:

- Computer assisted surgery
- Minimally invasive surgery
- Alternatives to knee arthroplasty
- Functional assessment of knee arthroplasty
- Surveillance of implant performance
- Experimental evaluation (wear simulation, kinematics and fixation)
- Computer simulation (performance assessment, intra-operative planning)
- New materials
- Biomechanics of the intact and implanted knee

This conference will bring together engineers and surgeons to address these issues and to act as a platform for the future development of total knee replacement and its alternatives. If you are currently being innovative in this field and would be interested in presenting a paper on your work, please contact Alison Payton on ++ 44 (0)20 7304 6829 email [a\\_payton@imeche.org.uk](mailto:a_payton@imeche.org.uk)

The Institution would like to thank **DePuy International Ltd** for sponsoring this Conference





## **Step-by-step guide to online access to *Journal of Biomechanics* for members of the European Society of Biomechanics**

*Journal of Biomechanics* is now available online to Society members who subscribe to the journal only via a new site. For your free access to the journal online please follow these instructions.

### **1 - Activating access to *Journal of Biomechanics***

To activate access and to create your personal account, you will need your Elsevier Customer Reference Number. Your Customer Reference Number can be found on the mailing label of the paper issue of *Journal of Biomechanics*.

### **2 - Type in the following URL:**

<https://cs.sciencedirect.com/activate/jbio/esb>

**Note** that “<https://>” MUST be entered for this URL – “<http://>” will not work. This is to ensure that your registration details are secured when you enter them into the registration form.

### **3 - Enter your Customer Reference Number and click on “submit”.**

The next step is completing a user profile. You will be asked to fill out a form and choose your own password. A username will be assigned to you. You will be notified of this. Both username and password will be case sensitive. After registration you can directly login with your new username and password.

**Note** – please do NOT use special characters, such as ö, ä, æ when entering your personal details into the profile form.

### **4 - Now you have registered you can go straight to:**

<http://www.sciencedirect.com/jbio> and enter your personal username and password in the login bar on the top of the page

If you encounter any problems registering, please note that older browsers may not support SSL encryption, which is required for secure data transmission. Also, cookies must be enabled in your browser to support the registration process.

Should you require any assistance, including if you cannot find your Customer Reference Number, please do not hesitate to contact the Customer Support department as follows:

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