Submit your Abstracts NOW! for the
Summer Bioengineering Conference 2013
Sunriver Resort in Sunriver, Oregon
June 26-29, 2013
Deadline: Friday, January 11, 2013
Before taking on the challenge of serving as Chair of the BED, and now 6 months into my term, I am constantly reminded of the large shoes that I am expected to fill – the legacy of those that worked to build the Division to what it is today. Most of our members are aware that the Bioengineering Division has a very strong history, but probably only a small fraction know more than a few details. In 2013, the Division will celebrate its 40th anniversary, and I thought a little time (and space) for some Division history was appropriate.

- The Bioengineering Division was established in 1973, growing out of the Human Factors Division (which was established in 1956).
- Our first chair, appropriately, was the “Father of Modern Biomechanics,” Professor Y.C. Fung – for whom our Young Investigator Award is named.
- The Division’s top award, the H.R. Lissner Medal, is named for a pioneer in injury biomechanics from Wayne State and has been awarded since 1977.
- Of the 40 chairs that have led the Division, 17% have been inducted into the National Academy of Engineering, 50% have received one (or more) Division medals, 76% have been named ASME Fellows.
- In 1993, the BED initiated the bi-annual Summer Bioengineering Conference, which (due to its overwhelming success) was changed to an annual meeting beginning in 2005. A leading objective for the SBC is to provide an opportunity for the next generation of leaders in the field – students and trainees – to present and be recognized for their work and develop the network necessary for continued success.

The contributions and leadership of members of our Division within the field of biomechanics is evident. For example, 50% of Lissner Medalists who received the award at least 10 years ago have been inducted into the National Academy of Engineering.

To have the chance to support the continued development and growth of the Division is exciting, if also a bit intimidating. As I face the challenge of writing this column (which I have told our Editor is more difficult than writing an NIH grant application!), I have the opportunity to think about what has been accomplished since July 1 and our remaining goals for the year.

As the Division celebrates its 40th anniversary, past and present leaders have determined that this is a great opportunity to look forward and evaluate the direction of the BED. As such, we will be having a Leadership Retreat in early April to develop an action plan for the next 10 years. Many of the past chairs have already contributed ideas regarding the mission and future of the BED. I will report back to the Division on the outcomes of the retreat at the SBC2013.

The success of the Division’s past activities have led to our involvement in three journals and four conferences, which support one of the primary missions of ASME – dissemination of knowledge.

The new editorial team for the Journal of Biomechanical Engineering, Beth Winkelstein and Victor Barocas, is doing a great job of building on the foundation established by Michael Sacks over the past 5 years. They and their associate editors continue to produce
MESSAGE FROM THE OUTGOING CHAIR

I want to thank the division for the opportunity to serve as your past chair. Our meetings, journals and membership remain strong under the leadership of our new chair Michele Grimm. She and the executive committee are overseeing a new strategic planning initiative for the division. Challenges and opportunities for discussion include the changing format of scientific dissemination, education and research focus in our field. By engaging in this discussion we will insure that we remain one, if not the, leading biomechanical engineering research society. I encourage all of you to contribute to this process by engaging in technical and administrative committee discussions and visiting with the new directions committee at the summer bioengineering meeting. Voicing your opinions and desires for the division through committees, surveys and grassroots initiatives is an important form of feedback for the division. Examples of how quickly things can change include the new nanoengineering initiative within BED. We now have both a new meeting (NanoEngineering in Medicine and Biology (NEMB) 2013) and a new journal (ASME Nanotechnology in Engineering and Medicine) that just a few short years ago did not exist. By being willing to engage in change, we can embrace opportunity while preserving existing strengths. I also want to thank all of the members who participate and volunteer in our division. Your belief and investment in this division is ultimately what defines our success.

John Bischof
BED Chair, 2011-2012

Upcoming event!

Summer Bioengineering Conference 2013, Sunriver Resort, Sunriver, Oregon, June 26-29, 2013
Abstracts Due January 11!
See p.30

Editor’s NOTE

As a native Oregonian, I am very excited to attend SBC2013 in Sunriver. Even though I grew up at the coast, I also love the mountains. Sunriver has much to offer the summer visitor, some of it very unique. Explore Lava Lands, mountain bike Mt. Bachelor, raft Dechutes whitewater, or enjoy a bike ride and picnic by the river. Oh, and remember to attend some conference sessions. So that we have sessions, submit your abstracts for SBC2013 by January 11.

Email any technical committee chair, if you are willing to review abstracts (click on their roster email).

As always, a big thanks to all who contributed to this edition! Anyone can send comments or suggestions of your own, to me at the address below.

Ken Fischer
Editor, BED Newsletter
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University of Kansas
1530 W 15th St, Rm 3138
Lawrence, KS 66045-7609
fischer@ku.edu
MESSAGE FROM THE CHAIR (CONTINUED)

an exceptional journal that describes some of the cutting edge research in our field. Plans are in the works for recognition of outstanding papers throughout the year as “Editors' Choice” articles, from which the Skalak Award winner will be selected each year. JBME was first published in 1977, and it has grown to become the 2nd most frequently cited journal in the field of biomechanics.

The much younger Journal of Medical Devices, under the leadership of Art Erdman and Gerry Miller, is continuing to develop and is publishing around 10 strong articles each quarter focused on applied research and the development of novel medical devices. This journal in particular may support undergraduate BME design programs, as it both discusses current technology and may spark creative thinking on the part of our students.

Most recently, the Division has become a partner in the new Journal of Nanotechnology in Engineering and Medicine, which was initiated by ASME in 2010. With editor Boris Khusid, this provides an additional forum for members and the broader scientific community to publish top quality articles on the application of nanoscience to the solution of biomedical challenges.

Planning for the 2013 Summer Bioengineering Conference, our flagship meeting, is well underway. I hope that many of you will join us in Sun River, Oregon, in June for outstanding science and a great opportunity to network with colleagues from around the world. And in 2014, we will co-schedule the SBC with the 7th World Congress of Biomechanics, to be held in Boston from July 6-11. We will maintain many of the key features that we have come to expect from the SBC - including the Student Paper Competition and the Lissner lecture. So, add that to your schedule and, after Independence Day weekend in Boston, join us for even more great science and networking.

For even more opportunities for exchanging ideas and knowledge in 2013, consider attending the ASME Nanomedicine in Engineering and Biology Conference (February 4-6 in Boston), the ASME Frontiers in Biomedical Devices Conference (September in Bethesda, MD, co-organized with the FDA), the sessions organized by the Rehabilitation, Design, & Dynamics Technical Committee at the IMECE (November 15-21 in San Diego), or the Design of Medical Devices Conference (April 8-11 in Minneapolis) organized by Journal of Medical Devices editor Art Erdman. Many of these conferences serve to also provide links between our academic members and students with the industry partners that our research and design work supports.

Some of you may have heard grumbling in the past about challenges faced when working with ASME “National.” I am happy to report that a new team in New York is working very well with the Division to help us to navigate the bureaucracy of the parent organization. While it is still not possible to get things processed instantaneously, the lines of communication are fully open and working well. Stephen Crane, our Program Manager, and Lashion Pettiford, our Administrator, have been a tremendous help over the past six months. I would also like to thank Jacinta McComie, our previous Administrator, for her years of valiant effort in supporting the Division and wish her the best of luck in her new role at ASME.

Leadership within the Division is very much a team effort, and I have the true pleasure of working with an outstanding group of individuals on the Executive Committee and Technical Committees. I would like to extend special thanks to John Bischof for his service last year as Division Chair.

I encourage everyone to get involved with the BED – at whatever level your schedule allows. Consider attending committee meetings on the Wednesday of the SBC, volunteering to review abstracts or serve as a judge for the Student Paper Competition. And as always, the BED Leadership works to support the goals of the members. If you have any suggestions or comments regarding the activities or direction of the Division, please feel free to contact me or any of the Executive Committee members.

Michele Grimm, Chair
ASME Bioengineering Division
2012-2013
The BED’s Honors and Awards Committee encourages the membership to nominate candidates for the Division’s three special recognition awards.

Nominations from the pool of active members of the BED are now open for the 2014 awards! To nominate a colleague or yourself for a 2014 award, please submit the nomination form to the Chair of the appropriate Honors Committee no later than Sept. 1, 2013. In preparing nomination packages please note that Honors committee members cannot submit a candidate or provide a letter of support to the committee they are serving.

Nominations forms can be found at [http://divisions.asme.org/bed/Honors_Awards.cfm](http://divisions.asme.org/bed/Honors_Awards.cfm) and Honors Committee membership at [http://divisions.asme.org/bed/Committees.cfm](http://divisions.asme.org/bed/Committees.cfm) for the following special recognition awards.

**The Y.C. Fung Young Investigator Award** recognizes outstanding investigators, early in their careers, for significant potential to make substantial contributions to the field of bioengineering and a demonstrated commitment to bioengineering. Candidates must have earned a relevant Ph.D. or equivalent degree within seven years of their nomination and must be under 36 years of age on June 1 of the year of nomination.

**The Van C. Mow Medal** is bestowed upon an individual who has made significant contributions to the field of bioengineering through research, education, professional development, leadership in the development of the profession, mentoring of young bioengineers, and service to the bioengineering community. The individual must have earned a Ph.D. or equivalent degree between ten and twenty years prior to June 1 of the year of the award.

**The H. R. Lissner Medal** was created in 1977 by the Bioengineering Division of ASME to recognize significant contributions to bioengineering. These may be (1) research contributions; (2) new methods for measurement; (3) new equipment and instrumentation; (4) educational contributions; and/or (5) service to the BED and/or the bioengineering community.

Please join us this summer as we recognize the recipients of the 2013 awards at the SBC banquet and consider nominating a deserving colleague for the 2014 awards.

*Thomas P. Andriacchi*
*Honors and Awards Chair*
*2011-2014*
2012 Y.C. Fung Young Investigator Award

The Y.C. Fung Young Investigator Award recognizes outstanding investigators, early in their careers, for innovative quality research and a demonstrated commitment to bioengineering. This award was a division level award from 1985 to 1998, but has been a society level award since 1998.

Dr. Marissa Nichole Rylander received her PhD in Biomedical Engineering and her master’s and undergraduate degrees in Mechanical Engineering all from the University of Texas at Austin. She is an Associate Professor at the Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences and the Department of Mechanical Engineering at Virginia Tech. Dr. Rylander is the Director of the Tissue Engineering, Nanotechnology, and Cancer Research Laboratory. Her research focuses on 1) development of multimodal cancer therapies using novel nanomaterials in combination with laser treatment, 2) measurement and modeling of biotransport and tumor response to therapy, 3) creation of systems for real time monitoring and control of dynamic biological processes (e.g. inflammation, tumor growth, and tissue regeneration), 4) stress conditioning strategies for tissue regeneration, and 5) creation and utilization of tumor representative systems for therapy development. Since beginning her position at Virginia Tech in 2006, she has been awarded the Outstanding New Assistant Professor in 2008 and the Faculty Fellow Award in 2010 for excellence in research, teaching, and service. She received a NSF Early CAREER Award in 2010 focused on development of a novel sensing system for characterization of the spatiotemporal tumor response to nanoparticle-mediated photothermal and photochemical therapy. She has received numerous grants from NIH and NSF with total funding of $8,581,665 and has published 40 peer reviewed articles. She has been a session chair for the ASME Summer Biomedical Engineering Conference Biotransport Division for the past three summers and is serving on the ASME NanoEngineering for Medicine and Biology Steering Committee.

Jay D. Humphrey, Chair
Y. C. Fung Young Investigator Award Committee 2008—2014

1986 Mark H. Holmes
1987 Steven A. Goldstein
1989 David N. Ku
1990 Jay D. Humphrey
1991 Michael Kwan
1992 Cheng Zhu
1993 John A. Frangos
1994 Mehmet Toner
1995 Cheng Dong
1996 Tony Keaveny
1997 Gerard A. Ateshian
1998 Louis J. Soslowsky
1999 Rebecca Richards-Kortum
2000 Farshid Gullak
2001 David F. Meaney
2002 Jeffrey A. Weiss
2003 Sangeeta N. Bhatia
2004 Richard E. Debski
2005 Jeffrey W. Holmes
2006 Beth Winkelstein
2007 Stavros Thomopoulos
2008 Gabriel A. Silva
2009 Robert L. Mauck
2010 Matthew J. Gounis
2011 Ali Khademhosseini
2012 Marissa Nichole Rylander

Multi-walled nanotube and single walled carbon nanohorns.
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Professor John Bischof is internationally recognized for his research in bioheat and mass transfer and nanomedicine. He was educated at the University of California prior to performing a postdoctoral fellowship at Harvard and finally joining the faculty at the University of Minnesota in 1993. He is currently a Distinguished McKnight University Professor and holds the Carl and Janet Kuhrmeyer Chair in the Department of Mechanical Engineering. He also has appointments in the Departments of Biomedical Engineering and Urology. He has made numerous contributions to bioengineering in general and biotransport in particular. Applications supported by his research include: (1) thermal therapies for treatment of cancer and cardiovascular disease, (2) biopreservation of biomaterials used in reproductive and regenerative medicine, and (3) nanoparticle heat and mass transport for disease diagnosis and treatment. He has authored or co-authored numerous publications and several patents and is recipient of both young investigator awards (NSF, NIH, Whitaker) and society awards (ASME, AIMBE, AvH and JSPS fellow). Dr. Bischof has served the ASME and broader biotransport community in various roles and is the current Chair of the Bioengineering Division. He has supervised and mentored many undergraduate, graduate and post-doctoral students who are now in medicine, academia or biomedical industry. He lives in St. Paul Minnesota with his wife Laura Dale and his two daughters Inge and Theodora.

Lori A. Setton, Chair
V. C. Mow Medal Committee
2011–2014

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V. C. Mow Medal Committee
2011–2014

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Lori A. Setton, Chair
V. C. Mow Medal Committee
2011–2014
The H. R. Lissner Medal was created in 1977 by the Bioengineering Division of ASME to recognize significant contributions to bioengineering. The H. R. Lissner Medal became a Society-wide award in 1987 through a donation from Wayne State University and the University of California San Diego. The award is named in honor of Prof. Herbert R. Lissner of Wayne State University for his pioneering work in biomechanics that began in 1939.

David L. Butler received his Ph.D. in Engineering Mechanics and Biomechanics from Michigan State University. He is currently Professor and Head of Biomedical Engineering at the University of Cincinnati. His research has focused on soft tissue and joint biomechanics, in vivo tissue forces and function, and functional tissue engineering and developmental biology to improve tissue repair. He is the author of over 140 publications. Dr. Butler is the recipient of two Kappa Delta Awards from the American Academy of Orthopaedic Surgeons and the Gustas Larson Award from ASME. He is a fellow of ASME and inaugural fellow of AIMBE. NIH and NSF support his research and training efforts and he is active in the US National Committee on Biomechanics and Sigma Xi. He has lead efforts to develop functional tissue engineering and to establish success criteria as universities, industry and government labs conduct basic research and develop novel tissue engineering therapies for damaged and diseased musculoskeletal tissues. He lives with his wife Sara of 42 years in Fairfield, Ohio. Sara is on the faculty at Miami University in Oxford, OH.

Thomas P. Andriacchi, Chair
H. R. Lissner Award Committee,
2011–2014

1977 Robert W. Mann
1978 Y.C. Fung
1979 Robert F. Rushmer
1980 F. Gaynor Evans
1981 Max Anliker
1982 R.M. Kenedi
1983 Henning E. von Gierke
1984 Perry L. Blakshae
1985 Richard Skalak
1986 Albert H. Burstein
1987 Van C. Mow
1988 Alf Louis Nachemson
1989 Robert M. Nerem
1990 Albert B. Schultz
1991 Savio Lau-Yuen Woo
1992 John C. Chato
1993 Don P. Giddens
1994 Sheldon Weinbaum
1995 Robert E. Mates
1996 Albert I. King
1997 Ajit P. Yoganathan
1998 Malcolm H. Pope
1999 Stephen C. Cowin
2000 Morton H. Friedman
2001 W. Michael Lai
2002 Kenneth R. Diller
2003 Vijay K. Goel
2004 John M. Tarbell
2005 Steven A. Goldstein
2006 Peter A. Torzilll
2007 Maury L. Hull
2008 Noshir A. Lagranga
2009 Thomas P. Andriacchi
2010 Roger Kamm
2011 Jay D. Humphrey
2012 David L. Butler
ASME DEDICATED SERVICE AWARD

In 1983, the ASME Board of Governors approved the establishment of the Dedicated Service Award. It honors unusual dedicated voluntary service to ASME marked by outstanding performance, demonstrated effective leadership, prolonged and committed service, devotion, enthusiasm and faithfulness.

In 2012 the American Society of Mechanical Engineers presented the Dedicated Service Award to Rita Patterson, PhD for dedicated voluntary service to the society marked by outstanding performance, demonstrated effective leadership, prolonged and committed service, devotion, enthusiasm, and faithfulness. Dr. Patterson is a Professor at the University of North Texas Health Science Center. Rita’s contributions to ASME are as listed:

- Intern, Minority Leadership Program of the ASME Board on Minority and Women assigned to the Center for Research and Technology. (1997-1998)
- Member Center for Research and Technology Development. (1998-2004)
- Vice Chair BED Committee on Rehabilitation and Design. (1998-2000)
- Chair BED Committee on Rehabilitation and Design. (2001-2003)
- National Nominating Committee. (Secretary 2002, Advisor 2003)
- Local Arrangements Chair, Summer Bioengineering Conference, Vail, CO. (2005)
- Bioengineering Division Executive Committee - Member Affairs. (2005-2008)
- Bioengineering Division Executive Committee, Secretary Elect. (2008)
- Bioengineering Division, Executive Committee, Secretary. (2009)
- Bioengineering division Executive Committee Chair. (2010)
- Bioengineering representative to the Basic Engineering group. (2011-2012)

Enjoy great golf weather and awesome views in Sunriver! Submit your Abstracts by Friday, January 11!
Promotions to ASME Fellow

Ozan Akkus

As described on the ASME website, “Fellow Grade is the highest elected grade of membership within ASME, the attainment of which recognizes exceptional engineering achievements and contributions to the engineering profession.” There are about 3000 Fellows of ASME. Since the last edition of this newsletter, the membership of the Bioengineering Division has been successful in promoting 10 more of its members to the rank of Fellow within ASME. This is a significant number as the total number of fellows with BED as their primary division is close to 100 and about 500 of the fellows have BED indicated as one of the divisions they are affiliated with. These numbers reflect the strong presence of BED within the ranks of Fellows of ASME. The citations for four of these new ASME Fellows are archived on the ASME website, and are reproduced below. The citations for the remaining Fellows will be included in one of the upcoming newsletters, when made available by ASME. If you know of a colleague who meets this standard and who has a minimum of 10 years of active service to ASME, please nominate him or her through the ASME fellow website. The nominations are accepted four times a year (March, June, September and December). Eligibility criteria and the outline of the nomination process can be found on the ASME website at http://www.asme.org/aboutasme/honors-awards/fellows/nomination-steps. Also, I will be happy to address your questions regarding the nomination process. Please inform me of your nominations so that we can be certain to recognize all BED Fellows in this newsletter and at the banquet of the Summer Bioengineering Conference.

Ozan Akkus, Chair
Membership Committee
2011–2014

Wei Yong Gu's academic record is outstanding. He has received many awards and has published more than 130 original papers and meeting abstracts, all marked by a high degree of engineering rigor and establishing the foundation for his future work. Gu has mentored many undergraduate and graduate students. He is leading the field in understanding the mechano-signal transductions in cells for modulating metabolic events in order to understand growth and maintenance of homeostasis of biological tissues. Ph.D. (1994), Columbia University.

Muhammed Taher Saif made seminal contributions to the field of nano and cell-mechanics, and developed instruments at the microscale to study various phenomena at nanoscale. In nano mechanics, he revealed the intricate interplay between heterogeneity in microstructure and its average size, and their combined role in determining the mechanical behavior of nanoscale materials. He showed, for the first time, a link between mechanical tension in neurons, and memory and learning in animals. Though it has long been believed that biochemical signaling is the basis for memory formation and learning, Saif’s group recently discovered that cancer cells can exhibit metastasis in vitro induced solely by an appropriate mechanical softness of the microenvironment. Ph.D. (1993), Cornell University.
Promotions to ASME Fellow (continued)

Beth A. Todd has outstanding professional leadership accomplishments, serving in regional and national positions in the ASME, SWE, and ASEE. Many of her accomplishments are related to student sections. Under her mentorship, The University of Alabama section has generated many future leaders, including two C.T. Main Silver Medalists. Todd has been named both regional and national Faculty Advisor of the Year by both the ASME and SWE. She has produced innovation in engineering education in the areas of extracurricular learning and design education and has supported and mentored 35 potential future engineering educators through funded engineering education programs. Ph.D. (1992), University of Virginia.

Pei Zhong has made outstanding contributions to the improvement and innovation of shock wave lithotripsy technology, and for the characterization of the mechanical properties of renal calculi. He is an internationally recognized leader in SWL and the recipient of an NIH MERIT Award for his work in this field. Zhong has also developed original methodologies and experimental techniques for shock wave-bubble interaction and bubble-bubble interaction that have broad implications in therapeutic ultrasound, including, in particular, tandem microbubble for directional and localized single cell membrane poration in microfluidic systems. Ph.D. (1998), University of Texas Southwestern Medical Center.

SBC2013
Great science and great times with the family!
Submit abstracts by Jan 11!
The ASME Bioengineering Division presents a series of awards to the authors of outstanding research contributions to BED journals and conferences. The Richard Skalak Award is presented to the authors of the paper voted by the Journal of Biomechanical Engineering editorial staff to be the most meritorious amongst those nominated over the course of a year. Nominations for this award are submitted to the JBME editorial staff (see instructions in this newsletter!) A series of awards are presented to B.S., M.S., and Ph.D. level students for research contributions to the summer bioengineering conference. Awardees are selected by a panel of faculty volunteers from throughout the BED.

If you are willing to volunteer for judging student competition abstracts or on site presentations at SBC 2013, please contact Sarah Kieweg, chair of the Student Paper Competition Committee. (kieweg@ku.edu)

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**SBC 2012 Student Paper Competition**

As usual, the Student Paper Competition had a great turn out in 2012. There were 260 abstracts (190 PhD, 47 MS and 23 BS) submitted to the competition. This is the second year that the doctoral competition was podium presentations only. The Student Paper Competition committee feels this new model works well and plans to continue with this approach. The competition isn’t possible without an awesome effort by over 68 PI’s from 55 different institutions who helped judge poster and podium presentations. Using a composite, normalized score of the abstract judging and onsite presentation score, cash prizes were awarded to the top 3 students in each subtheme for each level. Awards are made at the banquet on Saturday night at the conference.

**2012 Student Paper Committee**

Tammy Haut-Donahue, Overall Chair  
Sarah Kieweg, Ph.D. Chair  
Andrew Anderson, M.S. Chair  
Kerem Pekka, B.S. Chair

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<tr>
<th>Design, Gait, Robotics and Biomaterials- Bachelors Level</th>
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<tr>
<td>1st Place</td>
<td>Jeffrey Hyypio, University of Minnesota</td>
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<tr>
<td>2nd Place</td>
<td>Kelly Seymour, Elizabethtown College</td>
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<tr>
<td>3rd Place</td>
<td>Bethany Powell, Valparaiso University</td>
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<th>Fluid and Solid Biomechanical Engineering- Bachelors Level</th>
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<tr>
<td>1st Place</td>
<td>David Schreier, University of Wisconsin</td>
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<td>2nd Place</td>
<td>Joseph Dolensky, Georgia Tech</td>
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<tr>
<td>3rd Place</td>
<td>Daniel Brown, University of Pittsburgh</td>
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<th>Design, Injury, Rehabilitation and Orthotics - Masters Level</th>
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<tr>
<td>1st Place</td>
<td>Stephanie Beeman, Virginia Tech</td>
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<tr>
<td>2nd Place</td>
<td>Jason Miller, University of Washington</td>
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<tr>
<td>3rd Place</td>
<td>Steven Boronyak, Vanderbilt University</td>
</tr>
</tbody>
</table>
### SBC2012 Student Paper Competition (continued)

#### Solids, Imaging and Orthopaedics - Masters Level

- **1st Place**: Brianne Connizzo, University of Pennsylvania
- **2nd Place**: Lauren Ferris, University of Kansas
- **3rd Place**: Sarah Wohlman, Northwestern University

#### Fluids, Cell Mechanics, Tissue Engineering - Masters Level

- **1st Place**: Yasutaka Tobe, Waseda University
- **2nd Place**: Amy Silverstein, University of Pennsylvania
- **3rd Place**: Haijiao Liu, University of Toronto

#### Biotransport and Devices - Doctoral Level

- **1st Place**: Christopher Arena, Virginia Tech/Wake Forest
- **2nd Place**: Zhenpeng Qin, University of Minnesota
- **3rd Place**: Thomas Claiborne, Stony Brook University

#### Cardiovascular Solid Mechanics - Doctoral Level

- **1st Place**: Ian Campbell, Georgia Tech/Emory University
- **2nd Place**: Bahar Fata, University of Pittsburgh
- **3rd Place**: Lucas Ting, University of Washington

#### Injury and Dynamics of Motion - Doctoral Level

- **1st Place**: Sevan Oungoulian, Columbia University
- **2nd Place**: Andrew Meyer, University of Florida
- **3rd Place**: Ryan Koopes, Rensselaer Polytechnic Institute

#### Cardiovascular Tissue Engineering and Flow - Doctoral Level

- **1st Place**: Christopher Szot, Virginia Tech/Wake Forest
- **2nd Place**: Bryce Whited, Virginia Tech
- **3rd Place**: Veronique Peiffer, Imperial College London

#### Tissue and Cell Solid Mechanics - Doctoral Level

- **1st Place**: Baptiste Coudrillier, Johns Hopkins University
- **2nd Place**: Michael Fernandez, Columbia University
- **3rd Place**: Stefaan Verbruggen, National University of Ireland Galway

#### Cell Mechanics and Signaling - Doctoral Level

- **1st Place**: Eric Clayton, Washington University-St. Louis
- **2nd Place**: Mohammad Hadi, University of Minnesota
- **3rd Place**: Sudhir Khetan University of Pennsylvania

Submit your best work to the Student Paper Competition!

Highlighted Sessions
- Thrill of Competition
- Prestige and Honor
- Cash Awards!
undergraduate rehabilitation and assistive device design project competition

The 2012 SBC was the second year of the Undergraduate Design Project Competition in Rehabilitation and Assistive Devices. Many of the entries were senior design projects that involved rehabilitation and assistive technology which were already being developed as part of the curriculum. Last year 14 abstracts were submitted from 13 different schools.

Each abstract was reviewed using the following five criteria, all equally weighted: 1) Product need and market potential, 2) Device utility and novelty, 3) Technical feasibility, 4) Budget and economic plan, and 5) Writing clarity and style. All abstracts were reviewed by three independent reviewers and six finalists were selected from the submitted abstracts. The six teams selected as finalists were from Clarkson University, University of Denver, University of Waterloo, Indian Institute of Technology Delhi, Illinois Institute of Technology, and Rice University. Monetary awards of $3000 (provided by NSF) were awarded to the finalists to help defray travel expenses to attend the conference. Presentations were judged by a panel of onsite judges using five equally weighted criteria: Product need and market potential, Device description, Device performance, Economic plan, and Presentation clarity and style. The winning teams for 2012 are shown below.

2013 marks the third year of competition with over $30,000 in travel awards which have been distributed to past student competition teams. Any individual or team of undergraduate students within North America who are graduating no earlier than Fall of 2012 are welcome to submit an abstract. All majors are welcomed. Student teams developing rehabilitation or assistive devices as a senior project are especially encouraged. A simple information template must be submitted by January 11, 2013, but the detailed a two-page abstract is not due until February 15, 2013 (see http://www.asmeconferences.org/SBC2013/UndergraduateCompetition.cfm).

For more information contact the 2013 committee chair, Martin Tanaka (mtanaka@wcu.edu).

Martin Tanaka, Chair
Undergraduate Design Competition
SBC 2013

2012 Undergraduate Rehabilitation and Assistive Device Design Competition Awards

1st Place
Robert Morrison, Thomas Lord, Emily Esko, Lauren Gillmeister, Christine Kazlauskas, Derek G. Kamper, Jennifer Kang-Mieler
Novel Electronic Travel Aid to Assist Visually Impaired Individuals Navigate Their Environment
Illinois Institute of Technology

2nd Place
Thomas V. Finn, Thomas R. Burns, Laurel Kuxhaus, Kevin Fite, Ryan S. Pane, Frank Hemsing Jr., Kathleen A. Lewicki, Emily J. Garrant
Design of a Multi-Function Walker/Cane for Enhanced Assistive Function
Clarkson University

3rd Place
Pranay Jain, Anshul Singhal, P. V. M. Rao
Portable Braille Reader
Indian Institute of Technology Delhi
Richard Skalak (1923-1997) played a leadership role in the formative decades of the discipline of biomedical engineering through his technical contributions in biomechanics, his educational influence on students, and his service to many developing societies and journals. Richard Skalak believed in several central approaches to bioengineering and several central values in working with people. In bioengineering, these were 1) the useful combination of mathematical and computational modeling with experimental results, to better inform the new biological understanding that is derived, and 2) the inclusion of both microscale and macroscale phenomena in understanding complex biological systems. In terms of mentoring students and collaborating with colleagues, these were 1) share ideas freely, 2) listen to ideas of others and integrate the best into new developments, and 3) show tolerance and respect for others at all times. The ASME BED/JBME best paper is intended to honor the memory of Richard Skalak by recognizing an outstanding paper published in JBME in the prior year of the award.

For 2011, the Skalak Best Paper was awarded to William J. Richardson, Richard P. Metz, Michael R. Moreno, Emily Wilson, James E. Moore, Jr. of the Department of Biomedical Engineering, Texas A&M University, for their paper entitled “A Device to Study the Effects of Stretch Gradients on Cell Behavior: Abstract” J Biomech Eng. 2011 Oct;133(10):101008. All Associate Editors, who voted for the best paper based on those that received an honor level recognition in their review, recognized that the awardees certainly exemplify all of the characteristics of the Skalak Award. I, along with the Associate Editors, feel that the legacy of Richard Skalak is greatly enhanced by this outstanding example of modern bioengineering.

**A Device to Study the Effects of Stretch Gradients on Cell Behavior: Abstract**

Mechanical forces are key regulators of cell function with varying loads capable of modulating behaviors such as alignment, migration, phenotype modulation, and others. Historically, cell-stretching experiments have employed mechanically simple environments (e.g., uniform uniaxial or equibiaxial stretches). However, stretch distributions in vivo can be highly non-uniform, particularly in cases of disease or subsequent to interventional treatments. Herein, we present a cell-stretching device capable of subjecting cells to controllable gradients in biaxial stretch via radial deformation of circular elastomeric membranes. By including either a defect or a rigid fixation at the center of the membrane, various gradients are generated. Capabilities of the device were quantified by tracking marked positions of the membrane while applying various loads, and experimental feasibility was assessed by conducting preliminary experiments with 3T3 fibroblasts and 10T1/2 cells subjected to 24 h of cyclic stretch. Quantitative real-time PCR was used to measure changes in mRNA expression of a profile of genes representing the major smooth muscle phenotypes. Genes associated with the contractile state were both upregulated (e.g., calponin) and downregulated (e.g., α-2-actin), and genes associated with the synthetic state were likewise both upregulated (e.g., SKI-like oncogene) and downregulated (e.g., collagen III). In addition, cells aligned with an orientation per-

(Continued on page 18)
Dual Editorship
In January 2012, JBME transitioned to a dual editorship, with Beth Winkelstein joining Michael Sacks, and supervising the submissions related to human movement, orthopaedics, hard and soft tissues, orthotic devices, impact/crash injury and neuromechanics. At the annual Associate Editors’ meeting at the SBC in June, we celebrated Michael’s contributions and tremendous work to the success of the JBME. Victor Barocas began his term as co-editor in July 2012, overseeing submission in the areas of cellular biomechanics, biomaterials, biofluids, heat/mass transfer, and nano-mechanics.

With several months under our belts as a “duo,” we believe that the benefits of a dual editorship have impact that will continue to advance the quality of papers, review time and promote the journal. We consult each other weekly in order to maintain one-voice for the journal and are able to co-review initial submission in order to help offload the already over-burdened Associate Editors. We have also come to appreciate the substantial effort that was provided by the former editors during their terms. In particular, we are grateful to Michael Sacks for his supporting us as co-editors and his tutorship and guidance as we transitioned into our new roles. During his tenure with JBME, the journal experienced a steady increase in the number of submissions, while maintaining hearty rejection rate (~65%) and a shortened review time of average 1 month from submission to Associate Editor’s first decision. We are grateful to Michael for his establishing a positive trajectory for JBME and we look forward to continuing its success.
Continued Increase in Review Speed & Selectivity of Papers
In the last year, JBME has continued to thrive, with increasing submissions and decreasing review times. Our submissions increased from 552 in 2011 to 629 in 2012, while accepting only 16% of all submitted papers. Our review times continue to improve, with the 1-month time for a first decision and 3-6 months for final acceptance for most papers submitted in 2012. The continued selectivity and improved review speed is a credit to our Associate Editors and reviewers. We are grateful to all of them for their service!

Update of Journal Activities
In the past year, we have continued to work with ASME Publications to make improvements to the journal, ease the submission process, facilitate publication and promote the journal. In 2013, JBME will be moved to a digital library, which will facilitate publication of and access to accepted manuscripts. We also anticipate this will help speed up the time to publication after acceptance of manuscripts. With those changes, we also continue to work with ASME to improve the Journal Web-Tool to facilitate submissions, recommendation of reviewers, and copyright management. In the next year, we will be implementing several additional modifications designed to improve the journal and publicize your accepted papers. These include a more visible presence at national meetings, email notification of cited authors, and formal recognition of outstanding papers published in the journal.

Annual Special Issue
Conceived by Michael Sacks and John Bischof and supported by the Associate Editors and the BED Executive Committee, we are happy to announce that in early 2013 we will publish an Annual Special Issue of the JBME. This issue highlights reviews by leaders of the field and also papers from Y.C Fung Award, Mow Medal, and Lissner Medal, as well as papers by student award winners at the prior year’s Summer Bioengineering Conference.

As the issue heads to press we are extremely excited about the quality of the papers and the involvement of more senior and junior investigators, as well as students. In addition to the Medal Papers, there will be 12 student award papers and 10 invited reviews. Every paper in the issue was reviewed by two reviewers and the co-editors, and the quality of the articles is superb as a result. The reviewers, many of whom also serve as Associate Editors for the journal and thus contribute significantly all year round, deserve more recognition than they get, and we take this opportunity to thank them for their efforts.

We thank everyone involved in the Annual Special Issue for their tremendous efforts and look forward to next year’s special issue. We remain excited about the future of JBME and look forward to reporting even more good news in the future.

Beth Winkelstein, Ph.D.
Editor, JBME
University of Pennsylvania

Victor Barocas, Ph.D.
Editor, JBME
University of Minnesota, Twin Cities

See you in Sunriver for SBC 2013!
Submit abstracts by January 11.
Journal of Medical Devices focuses on applied research and the development of new medical devices or instrumentation, this new journal presents papers on devices that improve diagnostic, interventional, and therapeutic treatments. It provides special coverage of novel devices that allow new surgical strategies, new methods of drug delivery, or other devices that are intended to reduce the complexity, cost, or adverse results of health care. Significant biomechanical, clinical, or engineering content is expected. The Design Innovation Paper category is encouraged for reporting about novel devices for which there may be less extensive clinical or engineering results.

The March 2013 Issue will mark 5 full years of this Journal. Since the start of the Journal, 171 papers out of 512 submitted have been accepted for publication (not including accepted abstracts published from the Annual Design of Medical Devices Conference: www.dmd.umn.edu). Hard copy subscribers to this journal number over 1,200. The Co-Editors encourage you to submit a paper or subscribe to the journal.

The Journal of Medical Devices is now accepting Associate Editor nominations. Please send your nominations to the Editors.

The ASME Journal of Nanotechnology in Engineering and Medicine provides an interdisciplinary forum uniquely focused on conveying advancements in nanoscience and applications of nanostructures and nanomaterials to the creative conception, design, development, analysis, control and operation of devices and technologies in engineering, medical, and life science systems. Also covered, is the direction of current research, development, and technological evolution of the emerging fields of nano and micro-engineering as they apply to monitoring and control of various human diseases and disorders. For more information about the journal, visit http://asmedl.org/NANO/ or email the editor.
BED member John Pearce (ASME Fellow, 2012) is a true engineer’s engineer. By workday, he is a distinguished yet mild-mannered Temple Foundation Professor of Electrical and Computer Engineering at the University of Texas at Austin. He has a productive research program focused on measurements of cardiac function, including real-time pressure volume analysis, ischemia detection, and early detection of congestive heart failure. On the weekends, he is a volunteer steam and diesel locomotive engineer for the Austin Steam Train Association.

Austin Steam Train Association was founded in 1989 and began restoring the Southern Pacific 786 steam locomotive (leased from the city of Austin) in June of 1990 at the Westinghouse Motor Co. shops in Georgetown, Texas. The SP 786 was an MK-5 Mikado, built by Alco (American Locomotive Corporation) in 1915. A team of both professional and volunteer crews completed the intense restoration in a relatively brief amount of time. The SP 786 and one coach car were operational in December 1991. The first passenger excursion pulled by the restored SP 786 on July 25, 1992. The run became known as the "Hill Country Flyer", 32 miles one way from Cedar Park to Burnet, TX through the Texas hill country. The SP 786 was retired in July of 1999, due to cracks in the cylinder saddle casting. The then acquired the Alco Diesel 442 that runs the historic line yet today.

John has been actively volunteering with the Austin & Texas Central Railroad since May 1993. He started as a volunteer car attendant. Over time, he has held several positions, moving from car attendant to crew chief (onboard passenger services), student fireman, brake-man and finally a diesel locomotive engineer. The primary locomotive is the ATCX 442 an RSD-15 built by Alco in 1960 (top two photos). The locomotive weighs in at 335,000 lb (1,490 kN) and generates 2,450 HP (1,827 kW). The locomotive pulls 3 streamline lounge cars, 4 streamline chair cars, 6 P-70 coaches from the Pennsylvania RR.

John was not afraid to get dirty working for the railroad, as the lower right photo testifies. During his time as a volunteer he had a number of memorable trips. One was as Fireman for the last run of the Southern Pacific No. 786 steam engine (top left, below). Another was bringing the Thomas the Tank engine into downtown Austin several years ago (bottom left, below). John continues to help preserve this historic part of the American culture.
2012 summer bioengineering conference — final report

In June, 2012, the 14th Summer Bioengineering Conference (SBC) was held at the amazing El Conquistador Resort in Fajardo, Puerto Rico. This was the first foray of SBC outside the continental USA and was a scientifically outstanding meeting in a beach paradise! The 2012 SBC had 729 registrants, which compares extremely well with previous beach conferences. Submissions to this year’s conference remained numerous and excellent. We again had a full program of over 650 outstanding contributed papers, posters, and workshops. Attendees enjoyed not only a strong scientific program and the usual excellent networking opportunities, but also all that the resort and the surrounding Puerto Rico had to offer, including a private beach and nearby rain forests and rum distilleries, and of course, a concert by our own BEDRock band.

The scientific program (put together under the amazing leadership of Dr. David Steinman) had the theme The Art and Science of Imaging. Medical imaging is fast becoming an essential tool, both for making fundamental discoveries and for translating them to clinical use. This year, for the first time, SBC highlighted the theme of Imaging as a way to educate and inspire our attendees to consider the use and integration of imaging in the various biomechanical engineering disciplines. Dr. Mark Henkelman delivered an exceptional plenary lecture entitled “Genes into Geometry: Genetics of Development and Disease through Mouse Imaging”.

A special plenary session highlighted the ASME H.R. Lissner medal winner. This year we had the pleasure to acknowledge the accomplishments of David Butler (University of Cincinnati) for his leadership in establishing success criteria for functional tissue engineering of damaged and diseased musculoskeletal tissues. A special workshop session highlighted the ASME Van C. Mow and Y.C. Fung medal winners. John Bischof (University of Minnesota) was awarded of the Mow medal for accomplishments at the mid-career level for his contributions of biotransport and nanomedicine to diagnosis and treatment of cancer, cardiovascular disease, reproduction, and regenerative medicine. Marissa Nichole Rylander (Virginia Technological Institute) was the winner of the Fung award for her work on bioheat transfer, nanomedicine, biomedical optics, tissue regeneration, and cancer engineering.
The student paper presentations and competition (organized by Dr. Tammy Haut-Donahue and her team) remained a particular highlight of the conference. We were also excited to bring back the Undergraduate Student Design Competition, the Grand Challenge to Predict Knee Loads, and to introduce a new Computational Fluid Dynamics Challenge. Several workshops were presented, ranging from applications of imaging to biomechanics, bioengineering education, medical device translation, and career advice for new faculty. The 2012 SBC also celebrated the achievements of three of our distinguished luminaries through special scientific sessions: Dr. Ken Diller’s 70th Birthday in an Biotransport special session organized by Nicole and Chris Rylander, Dr. Lloyd Back in a Cardiovascular Diagnostics session organized by Rupak Banerjee, and Dr. Robert Spilker in a Computational Modeling of Biological Tissues session organized by David Corr and myself. Bob Spilker was only able to attend via skype due to declining health and I am very sad to report that he has since passed away.

Generous funding from the National Institutes of Health (NIBIB) and the National Science Foundation (CBET, GARDE), as well as excellent industry sponsorships helped make the meeting a success and helped support, among other things, our strong student attendance. As always, the SBC would not even be held, let alone with such success as the 2012 meeting, if it were not for the hard work of a dedicated set of volunteers. Those volunteers that tirelessly and selflessly gave of their valuable time to serve on the SBC 2012 Organizing Committee were: Dr. David Steinman (Program Chair), Dr. Sara Wilson (Information Chair), Dr. Tammy Haut-Donahue (Student Paper Competition), Dr. Mohamed Samir Hefzy (Finance Chair), Dr. Steve Thomopoulos (Local Arrangements Chair), Dr. Jenni Buckley (Exhibits Chair), and Dr. Kristen Billiar (Publication Chair). I truly owe them all my thanks for being such excellent colleagues and dedicated members of the ASME BED.

I look forward to enjoying SBC 2013 as a regular attendee and wish the Organizing Committee all of the best for a successful conference. See you in the mountains of Sunriver Oregon this June!

Dawn M. Elliott, Conference Chair
David A. Steinman, Program Chair
SBC 2012
SBC 2012 included another fantastic jam session, led by its very own band, BEDrock. The venue was at the El Conquistador resort, and the crowd of conference attendees (and others) was great!

BEDrock band formed in 2003 at the SBC meeting in Key Biscayne, FL. They have played at every Summer Bioengineering Conference since then, as well as at a couple of BMES meetings.

The BEDrock concert at SBC 2012 featured Joel Berry, Danny Bluestein and daughter Zoe, René van Donkelaar, Alan Eberhardt, Clark Hung, Patty Katsaros, Jimmy Moore, Mike Moreno, Luke Timmins, and Jeff Weiss. Special thanks to David Vorp’s son, Justin, who was the only band member to play in ALL the sets. No rest for the drummer! Also, at SBC 2012 Ross Ethier rejoined BEDrock on guitar. Ross is a charter member from the first performance in 2003, but had not played since. It was great to have him back on stage! Nikos Stergiopulos also gave a terrific premier performance for SBC 2012 on bouzouki!

The weather was great for the Friday outdoor concert, and there was plenty of room for the enthusiastic dancing of BED members and their families. As in the past, security was not able to prevent a crowd of BED wannabe vocalists from storming the stage as back-up singers. But no ears were hurt in the ensuing mayhem. Each BEDrock show seems to eclipse prior performances, so there are great expectations for the music to come.

As usual, the band is already been planning for its show at SBC 2013 at Sunriver Resort! Who knows what other talented musicians may join the group.

Watch for more news of the time & place for the next BEDrock performance at SBC 2013 in Sunriver, Oregon!
First, on behalf of the Biotransport (BIOT) Committee, I would like to thank Ram Devireddy for his effective leadership as a Chair of our committee since 2010. Under his direction, BIOT committee focused on improving session themes and started multiple initiatives, including a symposium in memory of Prof. John Chato, dedicated sessions to celebrate Prof. Ken Diller's 70th birthday and workshops on Biotransport Education. We would like to thank Ram for his commitment towards BIOT committee.

Next, I take this opportunity to congratulate one of our successful younger brigade, Nichole Rylander, for being elected the Vice-Chair of our committee beginning 2012. We look forward to her leadership in the near future.

The BIOT Committee held their annual committee meeting at the scenic El Conquistador Resort, Fajardo, Puerto Rico as part of the 2012 Summer Bioengineering Conference (SBC). The BIOT committee unanimously approved the minutes of our meeting from 2011 SBC. We reported on the technical podium and poster sessions organized at the SBC in Fajardo, Puerto Rico and planned for the next year’s meeting in Sunriver Resort, Sunriver, Oregon. The technical sessions, organized by our committee at the ASME Heat Transfer, Fluids Engineering, and Nanochannels, Microchannels and Minichannels joint conference (July 8-12, 2012, Fajardo, Puerto Rico) and at the ASME IMECE Winter Annual Meeting (Nov 9-15, 2012, Houston, Texas), were also discussed. An update was also provided to the committee on member research accomplishments and awards, member promotions and relocations. Further, there was interest expressed by the committee for holding a workshop during 2013 SBC in line with the translational research theme, where chief scientific officers of start-up, venture capital or larger companies as well as regulatory bodies such as FDA could be contacted. Several such activities are currently being pursued by 2013 organizing committee.

For SBC 2011 in Puerto Rico, BIOT members submitted 54 abstracts to the conference. We thank the following reviewer's for their time and effort to review abstracts: R. Davalos, N. Hashemi, A. Jain, R.E. Diaz-Rivera, N. Chakraborty, S. Bhowmick, M. Sarntinoranont, Y. Yang, D. Shrivastava, J. Bischof, B. Han, J. Smith, S. Wang, L. Zhu, X. He, K. Mitra, C. Kumaradas, C. Rylander, R. Devireddy, C. Lee, R. Coger, F. Merchant, F. Sun, R. Goel, W. Tan, N. Rylander, Y. Liu, S. Thirumala, P. Garcia, N. Manuchehrabadi, Y. Rabin, F. Brown, B. Gao, P. Ayaswamy and J. Pearce. In addition, some of our members also participated in reviewing abstracts of the student paper competitions. The titles of the four technical podium sessions (and the corresponding session chairs) were:

1. Imaging in Biotransport (R. Davalos and M. Sarntinoranont)
2. BioMEMS and Microfluidics (B. Han and N. Hashemi)
4. Ken Diller 70th B’day Tribute Session (M. N. Rylander and C. Rylander)

In addition, BIOT members, Y. Rabin and L. Zhu, also chaired student paper competition entitled-PhD Student Paper: Biotransport and Devices. BIOT also sponsored a workshop on 'Biotransport Education,' funded by the NSF CBET – BME program and chaired by C. Rylander and myself.

The BIOT committee tentatively identified the following sub-themes for SBC 2013:

Design of Biotransport Devices, Nanoparticles in Thermal Applications, Thermal Ablation, Multi-Scale and Multi-Domain Modeling, Microfluidic Devices, Drug Delivery, Transport in Brain, Diseased (e.g., Cancer) Based Treatment, Trans-

(Continued on page 28)
Thanks to everyone who attended the 2012 SBC in Fajardo, Puerto Rico. The committee had great participation with 73 abstracts submitted through DDR in three broad themes: Design and Devices, Human Dynamics, and Rehabilitation. Seven podium sessions were programmed, some in conjunction with the fluids or solids committee, as well as a number of theme areas in the poster sessions. We had one workshop this year entitled Bringing Assistive Device Designs to Market organized by Ken Fischer with three speakers: Stephen Sundarrao (University of South Florida and CEO of Rehab Ideas, Inc.), Sandy McCombe-Waller (University of Maryland School of Medicine), and Scott Daigle (Co-founder of IntelliWheels, Inc.). In a continuation of our annual challenge, BJ Fregly and Darryl D’Lima again ran the Grand Challenge Competition to Predict in Vivo Knee Loads.

The 2013 SBC looks to be another exciting meeting for DDR in Oregon. We are running the same three themes (with numerous subthemes): Human Dynamics (Tom Gardner), Rehabilitation (Tamara Bush), and Design and Devices (Mike Moreno). If you aren’t already preparing, please consider submitting abstracts to these themes so that we can again program a number of sessions. If you are interested in reviewing abstracts for these themes please let one of the theme coordinators or committee chairs know. We are also again running the Grand Challenge Competition to Predict in Vivo Knee Loads.

BED DDR also had great participation in the Biomedical and Biotechnology Track at the 2012 IMECHE in Houston, TX thanks to the tireless effort of Dr. Ahmed Al-Jumaily of Auckland University of Technology. This track focuses on the implementation of various engineering principles in the conception, design, development, analysis, and operation of biomedical and biotechnological systems and applications. The abstracts were split over ten topics with plenary presentations given by Mauro Ferrari (The Methodist Hospital Research Institute) and Farshid Guilak (Duke University Medical Center).

Lorin Maletsky, Chair
Design, Dynamics, and Rehabilitation Committee 2010-2013

Video ride from Sunriver to Benham Falls!

Video ride Sunriver to Bend, Oregon!

Submit Abstracts by Friday, Jan 11!
FLUID MECHANICS committee

On behalf of all the fluids committee members, we thank our outgoing Program Chair, David Steinman, for his dedication and hard work over the years.

In addition, we congratulate Keefe Manning who was elected as Vice Chair of the Fluids Committee this past summer.

For SBC 2012, Keefe Manning and Brandon Dixon served as Theme Leaders for the two major themes: “Cardiovascular Fluid Mechanics” (Manning) and “Respiratory and Other Fluid Mechanics” (Dixon). They successfully led the reviewing and programming efforts and will serve again in this capacity for SBC 2013. For SBC 2012, Fluids organized 13 sessions and, as in previous years, most of these were joint sessions with other committees. Total submissions were comparable to that in 2011, although there was a drop in submissions to the “Respiratory and Other” theme. This was counterbalanced by an increase in submissions particularly to CV Devices, Pediatric Cardiology and CV Diagnostics. At SBC 2012, Fluids organized a workshop on 4D Phase Contrast MR for Visualizing Hemodynamics, led by John Oshinski, Yannis Papaharilaou and David Steinman. In addition, an inaugural CFD Challenge Workshop was organized by David Steinman and Frank Loth where the results from 26 participating groups were presented. The Fluids Committee meeting was well attended (n=30), with discussions about our theme structure and workshops for SBC 2013. In keeping with the Translational Research theme for SBC 2013, Christof Karmonik and Frank Loth are organizing a workshop entitled “The Clinical Utility of Blood Flow Simulations.”

Keefe, Brandon, and I look forward to your submissions, reviews, and attendance at SBC 2013. Take note that this year’s conference is scheduled a week later than usual (June 26th-29th).

Looking forward to seeing you in Sun River, Oregon this summer!

Francis Loth, Chair
Fluids Committee
2013—2015

While in Sunriver, explore the nearby Lava Lands National Monument, including Lava Butte, Lava Lands trails, and the Lava River Cave. Or hike to the head waters of the Metolius River (left), which emerges from springs as a full-fledged river.
SOLID MECHANICS committee

The Solid Mechanics Technical Committee organized or co-organized 23 podium sessions for SBC 2012 and co-sponsored the workshop “Probing Solid Mechanics over Hierarchical Scales by Noninvasive Imaging” with Cell & Tissue Engineering. We reviewed 263 abstracts, accepting about 90%.

A great way to get involved is reviewing abstracts and organizing sessions is to attend the Solid Mechanics meeting at the SBC; over 40 people attended in 2012. If you missed the 2012 meeting and would like to help review abstracts for SBC 2013, please contact the appropriate Theme Leader:

- David Corr, RPI – Musculoskeletal Soft Tissue Mechanics
- Virginia (Ginger) Ferguson, Colorado – Bone Mechanics
- Brian Kelly, UTHSC – Joint and Spine Mechanics
- Thao (Vicky) Nguyen, Johns Hopkins – Other Solid Mechanics


We look forward to lots of Solids abstract submissions in January and to seeing you in Oregon in June!

Jeff Holmes, Chair
Solid Mechanics Committee
2010–2013

Enjoy the green grass and blue skies in Sunriver! Submit your SBC2013 abstracts by January 11.
The 2012 SBC set another new record for the largest gathering of tissue and cellular engineering researchers in ASME history. Congratulations to all of us yet again!

We held two poster sessions, three Ph.D. competition podium sessions, and 11 podium sessions, one of which was organized jointly with other technical committees. We also had two packed workshops: Ali Khademhosseini, Rob Mauck, Roland Kaunas, and Kris Billiar organized a joint Education/Tissue and Cellular Engineering (TCE) workshop entitled, “How to Teach Tissue Engineering,” and Corey Neu and Guy Genin organized a joint Solid Mechanics/TCE workshop entitled, “Probing Solid Mechanics over Hierarchical Scales by Noninvasive Imaging.” And, as a special tribute to the role of tissue and cellular engineering in all of our lives, no less than two lunches featured what appeared to be heavily re-engineered tissues—thank you to Stavros Thomopoulos for choosing us instead of the Biofluids committee for this honor!

Many thanks to all who submitted abstracts for making this a great meeting, and also to all who reviewed abstracts: Steve Abramowitch (University of Pittsburgh), Ozan Akkus (Case Western Reserve University), Patrick Alford (Minnesota), Alex Almarza (Pitt), Nelly Andarawis-puri (Mount Sinai School of Medicine), Victor Barocas (Minnesota), Bahareh Behkam (Virginia Tech), Scott Bevill (Colorado Mesa University), Kris Billiar (Worcester Polytechnic Institute), Jason Burdick (Penn), Steven Caliari (Illinois), Nadeen Chahine (Feinstein Institute), Grace Chao (National Taiwan University), Yu Suk Choi (UCSD), David Corr (RPI), Daniel Cortes (Delaware), Guohao Dai (RPI), Michael Detamire (Kansas), Adam Engler (UCSD), Ahmet Erdemir (Cleveland Clinic), Ginger Ferguson (Colorado), Jianping Fu (Michigan), Nathan Gallant (University of South Florida), Guy Genin (Washington University), Michael Girard (Imperial College), Umut Gurkan (Harvard/MIT), Hai-Chao Han (UT San Antonio), Brendan Harley (Illinois), Rebecca Heise (Virginia Commonwealth), Alice Huang (Shriners Hospital), Hayden Huang (Columbia), Charles Huang (University of Miami), Jeff Jacot (Rice), Roland Kaunas (Texas A&M), Deok-Ho Kim (Washington), Kirsten Kinneberg (Colorado), Yasha Kresh (Drexel Univ. College of Medicine), Spencer Lake (Minnesota), Bradley Layton (Montana), Phil LeDuc (Carnegie Mellon), X. Shery Liu (Columbia), Lucas Lu (Delaware), Suzanne Maher (Hospital for Special Surgery), Steven Marra (Johns Hopkins), Kristyn Masters (Wisconsin), Rob Mauck (Penn), Patrick McGarry (NUI Galway), Gretchen Meyer (UC Galway), Mohammad Mofrad (UC Berkeley), Elise Morgan (Boston University), Alisa Morss Clyne (Drexel), Amrinder Nain (Virginia Tech), Nandan Nerurkar (Harvard), Corey Neu (Purdue), Paolo Provenzano (Fred Hutchinson Cancer Research Center), Sharan Ramaswamy (Florida International), Cynthia Reinhart-King (Cornell), Alexandre Ribeiro (Stanford), Marsha Rolle (Worcester Polytechnic Institute), Marissa Rylander (Virginia Tech/Wake Forest), Michael Sacks (Texas), Ali Sahari (Virginia Tech), Fred Schoen (Partners Healthcare/MGH), Jason Shearn (University of Cincinatti), Kevin Sheets (Virginia Tech), Jennifer Siggers (Imperial College), Srikanth Singamaneni (Washington University), Gurpreet Singh (Kansas State), Lester Smith (Washington University), Nate Sniadecki (Washington), Joel Stitzel (Virginia Tech/Wake Forest), Larry Taber (Washington University), Wei Tan (Colorado), Simon Tang (UCSF), Stavros Thomopoulos (Washington University), Mahama Traore (Virginia Tech), Victor Varner (Princeton), Franck Vernerey (Colorado), Amy Waggoner-Johnson (Illinois), I-Ning Wang (Columbia University), Hongjun Wang (Stevens), Jeff Weiss (Utah), Gang Xu
TCE Report (continued)

(Washington University), Feng Xu (Xi’an Jiaotong), Evan Zamir (Georgia Tech), and Yi Zhao (Ohio State). You, too, can be on this list in 2013—email us if you’re willing to volunteer for abstract reviews!

Our annual committee meeting was held on the first day of SBC 2012 on an exotic Caribbean island, and we planned there for SBC 2013. Our offerings include ten themes, and now is the time to send in your abstracts! Abstracts are due January 11, so be sure to plan ahead and join us at SBC 2013!

Guy M. Genin, Chair
Tissue and Cellular Engineering Committee 2011–2014

Biotransport Report (CONTINUED)


And finally, the committee also discussed several ideas and other topics to further improve and expand the activities of our members at the SBC and beyond. Senior BIOT members plan to actively facilitate nominating interested members for Associate Editorship of ASME journals. The BIOT committee plans to support ASME 2013 Nano-engineering for Medicine and Biology conference in Boston and 2013 National Heat Transfer Conference, as part of the 75th anniversary of the ASME Heat Transfer Division, in Minneapolis. Several of our members are actively helping in organizing these conferences. The members felt that BIOT should also actively pursue participation in international conferences, such as ICCHMT and jointly conduct conferences with JSME, KSME and BMES of China. BIOT plans to pursue these goals in future.

Rupak Banerjee, Chair
Biotransport Committee 2012-2015

Alpha Eta Mu Beta
National Biomedical Engineering Honor Society

Alpha Eta Mu Beta (AEMB), the National Biomedical Engineering Honor Society was formed in 1979 to recognize and encourage excellence in the field of Biomedical Engineering and Bioengineering. Today with over 34 active chapters and thousands of alumni in its ranks, AEMB continues to provide a meaningful and solid manner to honor the top students in the department, faculty and alumni of the school who have made outstanding contributions to the field. Members of AEMB have been recognized as assets not just to their departments and institutions but also to the local community. Over the years AEMB has transformed itself into a dynamic organization to meet the needs of its growing membership and alumni, the institutions that they serve and our society. Through several national initiatives, AEMB chapters have actively hosted various development, training, networking and service opportunities. Some of these activities include hosting speakers from industry and academia, field trips to top research labs and industry, workshops, high visibility within the department especially for open houses and move in days and various community outreach programs such as mentoring middle school students or visiting patients at the hospital. These activities provide AEMB members with a platform to develop critical lifelong skills that prepare them to excel for the post college environment or to transform individuals at their present jobs into leaders and innovators. In addition, AEMB offers several annual national awards to recognize the efforts of its members, chapters, and faculty. AEMB is also actively committed to promoting ethics and leadership in the field of biomedical engineering and hosts several ethics, public policy and development sessions in conjunction with the annual BMES conference. To learn more about AEMB and to start a chapter at your school, please visit us on the web at www.alphaetamubeta.org or contact the national officers at aemb@alphaetamubeta.org.
EDUCATION COMMITTEE

The BED Education Committee continues to focus on incorporating biomedical and biomechanical engineering education activities into the annual Summer Bioengineering Conference with a particular focus on interactive, practical workshops. The Education Committee hosted or co-hosted three workshops at SBC2012: 1) “Tips for Tenure in Bioengineering,” organized by Laurel Kuxhaus, featured round-table discussions with experienced mentors; 2) “Biotransport Education,” organized by Rupak Banerjee, co-sponsored with Biotransport Committee and funded by NSF, addressed new and emerging topics in biological transport phenomena; and 3) “Teaching Cell and Tissue Engineering” co-organized by Robert Mauck, Roland Kaunas, Ali Khademhosseini, and Kris Billiar and co-sponsored by the Tissue and Cellular Engineering Committee, presented new and effective approaches in the teaching of tissue and cellular bioengineering. All of the workshops were very well attended, as they have been at past meetings.

The annual committee meeting took place on June 20, 2012 at the El Conquistador Resort, Puerto Rico preceding SBC2012. Over 15 people contributed to a lively discussion of the role of the committee in the coming year. It was decided that the committee should focus on organizing and sponsoring workshops at the meeting and encouraging presentation of our community’s work in the area of education. We highly encourage submitting an abstract in the theme of “Biomedical Engineering Education” for presentation at SBC2013. We have a growing number of posters that receive a large number of views each summer and will sponsor oral sessions if enough high-quality abstracts are submitted in areas that will constitute cohesive sessions.

The majority of the committee meeting was consumed with a discussion of education workshops for future meetings. For SBC2013 in Sun River, Oregon, the Education Committee will team up with the Industry Advisory Committee to offer a workshop on the topic of teaching translational research in line with the overall theme of SBC2013. The workshop, co-organized by myself and Eik Siggelkow, Research Senior Engineer at Zimmer GmbH, will focus on helping educators teach our students, the new generation of innovators, to translate an idea to marketable product. The committee will also once again co-sponsor the NSF-Funded Biotransport Education Workshop, co-organized by Christopher Rylander, Kunal Mitra, and Mohammad Moftak, which will continue to address new and emerging topics in biological transport phenomena.

Finally, please join me in congratulating Laurel Kuxhaus of Clarkson University for being elected as the new vice chair of the BED Education Committee. Laurel has been extremely active in the committee over the past few years including organizing many workshops and participating in committee meetings and we look forward to her continued contributions.

We welcome new members and new ideas. We are eager to increase undergraduate and graduate student involvement. Anyone who would like to join the committee, suggest and/or organize an education session/workshop, or contribute Web resources you have found valuable in your own teaching, please contact the Education Committee chair, Kristen Billiar (kbilliar@wpi.edu).

Kristen Billiar, Chair
BED Education Committee
2012 - 2015
CALL FOR PAPERS

The Bioengineering Division of the American Society of Mechanical Engineering cordially invites you to attend the 2013 Summer Bioengineering Conference. An outstanding scientific program is planned, including Plenary Lectures, Symposiums, Workshops, and Student Paper Competitions. The theme for our conference will be Translational Research. Becky Bergman of Medtronic, Inc. will be the keynote speaker. Ms. Bergman is the Vice President of New Therapies and Diagnostics for Cardiac Rhythm Disease Management. Ms. Bergman has more than 24 years of experience in the medical technology industry and has served on the advisory committee for the NIBIB. She is a fellow of the American Institute for Medical and Biological Engineering (AIMBE) and a member of the National Academy of Engineering (NAE). Ms. Bergman will speak about the successful partnerships formed between academicians and industry that have helped translate technology to clinical use. In addition, there will be a workshop on Translational Research funding with representatives from NIH NIBIB and NSF Bioengineering SBIR/STTR programs.

Both oral and poster sessions will be presented in the spectacular setting of the foothills of the Cascade Mountains in Oregon. A 2-Day Abaqus course will also be offered at Sunriver prior to the start of the conference. Course details will be made available on the SBC conference website. The Sunriver Resort known for its natural beauty lies in the shadow of Mt. Bachelor along the Deschutes River in the Deschutes National Forest. The resort offers onsite canoeing and kayaking, fishing, mtn. biking along 36 miles of trails, horseback riding and golfing in addition to restaurants and bars (http://www.sunriver-resort.com/).

Student Paper Competition: Abstracts are solicited for consideration in the student paper competition at the levels of BS, MS and PhD. Students at the BS and MS levels that are selected as finalists for the competition will present their work in poster sessions. For the PhD Student Paper Competition, there will be 6 parallel podium sessions where the 36 highest scoring abstracts will be presented. The remaining abstracts submitted to the PhD competition will be considered for the general program, either podium or poster presentation. Cash awards will be made to the top papers at each level in multiple technical areas. All finalists must be present at the conference for consideration in the competition. Further information and instructions for the submission process are available at conference website. The Bioengineering Division is also hosting an undergraduate design competition with a focus on rehabilitation and assistive devices. This competition is particularly well suited for students enrolled in a senior design course, but it is also open to undergraduates at any level. Interested teams are encouraged to enter their proposal by January 11, 2013. Monetary awards for six finalist teams are planned to help defray project and travel expenses to the conference, based on availability of funding.

New This Year – Two Travel/Registration Awards: NSF Biomechanics and Mechanobiology Program is providing funding for complimentary student registration for the Ph.D. finalists in the Student Paper Competition. Also, NSF General and Age-Related Disabilities Engineering Program will provide funding for Travel Awards for students with disabilities. Further information for both awards is available on the conference website.

Submission of abstracts in all areas of Bioengineering and Biomechanics are invited.

Submission instructions and conference details may be found at: http://www.asmeconferences.org/SBC2013
Detailed themes and sub-themes may be found at: http://www.asmeconferences.org/SBC2013/TechnicalTracks.cfm

Important Dates: January 11, 2013 Submission of two-page abstracts (including Student Competitions) March 15, 2013 Notification of Authors

Conference Chair:
Charles Lee, Ph.D.
University of North Carolina Charlotte

Program Chair:
Ram Devireddy, Ph.D.
Louisiana State University
Join us in Boston this February for NEMB 2013! NEMB 2013 will be a unique gathering, structured to provide a platform for an important dialog across disciplines. We received a record number of abstracts and regret that we had to turn down a great many excellent submissions to develop a deep yet balanced and well-rounded program. Throughout the program there is a specific focus on the elements of quantitative design, analysis, and evidence that distinguish the approaches favored by engineers.

The lineup of plenary and keynote speakers alone will make it worth your trip, including Joanna Aizenberg (Harvard), Bob Langer (MIT), Sam Gambhir (Stanford), Chad Mirkin (Northwestern), Albert-László Barabási (Northeastern), Viola Vogel (ETH Zurich), Markus Buehler (MIT), Huajian Gao (Brown), Don Ingber (Harvard), Rakesh Jain (Harvard), C.T. Lim (National University of Singapore), Daniel A. Haber (Harvard), Gordana Vunjak-Novakovic (Columbia), Fred E. Regnier (Purdue), Gang Bao (Georgia Tech), Rashid Bashir (UIUC), Raoul Kopelman (U Mich), Shan Wang (Stanford), Scott Manalis (MIT), Michael Murphy (LSU), Ennio Tascotti (TMHRI), Hyun Joon Kong (UIUC), Sherry Harbin (Purdue), Joe Tien (Boston U), Anna Tampieri (TMHRI), Shouheng Sun (Brown), Daniel Otzen (Aarhus), Anna Balazs (U Pittsburgh), Bruce Shapiro (NIH/NCI), Oskar Hallatschek (Max Planck Institute), Chris Chen (Penn), Horacio Espinosa (Northwestern), Roger Kamm (MIT), Taher Serif (UIUC), Joachim Spatz (U Heidelberg and Max Planck), Dennis Discher (U Penn), Daniel Fletcher (UC Berkley), Dennis Wirtz (Johns Hopkins), Florenzo Omenetto (Tufts), Tony Weiss (U Sydney), Kit Parker (Harvard), Krystyn Van Vliet (MIT), Jason Burdick (U Penn), Ulrike Wegst (Dartmouth), Gershon Golomb (Hebrew U), Tarek Fahmy (Yale), Mark Wiesner (Duke), Robert Tanguay (U of Oregon), Bob Hurt (Brown), Michael Strano (MIT), Som Mitra (NJIT), Douglas E. Evans (NIOSH), Tom Seager (Arizona State), Frank von der Kammer (Vienna), and Kevin Dreher (US EPA).

But the depth of the conference extends far beyond the truly outstanding set of plenary and keynote addresses. We have a terrific line up of podium talks and posters, and several student paper competitions interspersed throughout these. The conference also has a few non-traditional sessions that seek to foster important debate; debate that can occur only in a cross-disciplinary setting such as this, and with a quantitative evidence-based engineering focus. Examples include a lunch-time panel discussion with several policy and thought leaders in nanomedicine, and a series of sessions aimed at pouching forward the debate about targeting of nanoparticles in cancer therapies.

ASME’s formal involvement in nanotechnology started in 2001, and has since then grown to become a very active community of researchers and professionals. The NanoEngineering for Medicine and Biology (NEMB) initiative has played an important role in bringing together clinicians and engineers, and a goal of NEMB is to strengthen these.

See you in Boston!

Sincerely,
Markus Buehler and Mehmet Toner (Conf Chairs)
Guy Genin (Program Chair)
Future Conference Announcements

DESIGN OF MEDICAL DEVICES CONFERENCE
www.dmd.umn.edu
April 8-11, 2013 | The Commons Hotel
Minneapolis, MN

CALL FOR PAPERS
The conference seeks original two-page papers that demonstrate new technologies and applications in the field of medical device design. Submissions from academic and industry researchers, clinicians and practitioners are encouraged. The paper should present an unbiased description of an experiment, product or business method related to medical devices.

All accepted papers will be published as a two page Technical Brief in the ASME Journal of Medical Devices. Conference registration and participation in the conference poster session is required for publication of the paper.

Preliminary papers due November 11, 2012
Reviews completed and notification of acceptance by December 31, 2012
Final papers due January 31, 2013

Program updates @ www.dmd.umn.edu
Registration begins January 1, 2013
check website for rate information

Keynote Speakers
Bin He, Director, IEM, University of Minnesota
Eric W. Kaler, President, University of Minnesota
Randy Schiestl, VP of R&D, Boston Scientific Corporation
Recipient of the 2013 Design of Medical Devices Award

2013 Sponsors

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Supercomputing Institute, University of Minnesota

Selected Technical Session Topics
- Cardiovascular Engineering
- Neuroengineering
- Micro & Nano Devices
- Medical Electronics
- Technology Assessment
- Design and Human Factors
- Orthopedics
- Surgical Robotics
- Innovation and Design
- Implantable Medical Devices
- Rehabilitation Technology
- 3-in-5 Competition
- Virtual Prototyping
- Entrepreneurship
- Neuroendovascular Devices
- Tissue Engineering
- Laser Therapies
- Medical Technology

Symposium - “Innovation in World Health Care”
Thursday, April 11

Medical Device Innovation Workshop
Monday, April 8, 2013
In this fast-paced, one-day workshop, you will learn the essentials of being a medical technology innovator and a key opinion leader. Lectures will be complemented by a series of hands-on activities where you will conceive, refine, prototype and develop a business proposition for a new med tech product.

*Limited space available. Register Early begins January 1, 2013!

Financial sponsorships are used to support the medical device education at the University of Minnesota.
Sponsorship Levels: Premiere ($20,000) Executive ($12,000) Associate ($5,000) Supporting ($3,000)
Direct questions to Art Erdman, Conference Chair (agerdman@umn.edu) or Jenny Holden, Conference Administrator (holden@me.umn.edu)
Future Conference Announcements

7th INTERNATIONAL CONFERENCE ON ETHICAL ISSUES IN BIOMEDICAL ENGINEERING

www.downstate.edu/orthopaedics/bioethicsconf2013

Call for Abstracts
The program committee is inviting submission of abstracts relevant to this conference. The Deadline for abstract submission is November 5, 2012. Notification of abstract acceptance December 15, 2012. Accepted abstracts will be published in theInternational Journal of Medical Implants and Devices that will be distributed at the meeting. Selected papers will be published in the Ethics in Biology, Engineering and Medicine: An International Journal.

An approximately 200-300 word single spaced abstract, should be typed in font size12. The preferred way is to E-mail your abstract, followed with a hard copy. In your cover letter please identify the corresponding author with complete mailing address, telephone number and E-mail address.

SUGGESTED TOPICS FOR PRESENTATIONS

- Clinical Trials of Biomedical Devices & Implants
- Ethical Issues in Biomedical Research
- Ethics of Nanobiotechnology
- Ethics of Genetic Engineering and Cloning
- Ethics of Stem Cell Use & Research
- Code of Ethics for Bioengineers
- Ethical Issues in Clinical Engineering
- Ethical Issues in Tissue Engineering
- Regulation of Implants & Devices
- Neuroethics
- Privacy and Bioinformatics
- Ethics of Big Banks

Mini-Symposiums:
- Ethical Issues in Dentistry
- Ethics in Defense and Homeland Security
- Ethical Issues in Rehabilitation Medicine
- Religion, Science and Ethics

Conference Chair
Subrata Saha, PhD
SUNY Downstate Medical Center
EBM@downstate.edu
Office – (718)-613-8652
Fax – (718)-270-3983

Keynote Speakers:
Thomas F. Budinger, MD, PhD
University of California, Berkeley

William Hendee, PhD
Medical College of Wisconsin

Invited Speakers:
Daniel Vallero, PhD
Duke University
George Khush, PhD
University of South Carolina
Kenneth R. Foster, PhD
University of Pennsylvania
Wade Robison, PhD
Rochester Institute of Technology

Registration
(Before March 1st, 2013)
Registration Fee*: $200
One-Day Registration
(does not include banquet): $150
Student Registration*: $70
Guest Banquet Ticket: $50

(After March 1st, 2013)
Registration Fee*: $250
One-Day Registration
(does not include banquet): $200
Student Registration*: $90
Guest Banquet Ticket: $50

Conference Site
SUNY Downstate Medical Center
450 Clarkson Avenue
Brooklyn, NY 11203

AMERICAN INSTITUTE FOR MEDICAL AND BIOLOGICAL ENGINEERING

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Dear Colleagues,
On behalf of the European Society of Biomechanics (ESB), we are pleased to announce that the 19th Congress of the European Society of Biomechanics (ESB2013) will be held at the Conference and Cultural Centre of the University of Patras, Greece, between 25-28 August 2013.

The main objective of the congress is to bring together researchers and practitioners in biomechanics to stimulate and promote research on all core topics of biomechanics, including emerging research areas.

Based on the previous Congresses, we believe that ESB2013 will have a strong impact on the development of biomechanics research work, identifying emerging areas of research and promoting the collaboration between its participants. We would like to invite you to attend the congress in Patras and participate in its scientific activities. We look forward to welcome you at the ESB2013.

Yours Sincerely,

Prof. Yannis Missirlis
Conference Chairman

IMPORTANT Dates:
Abstract Closing January 31, 2013
Author Notification March 2013
Early Registration May 30, 2013
See also www.esbiomech2013.org
The Food and Drug Administration has recognized modeling and simulation (M&S) as innovative tools for advancing regulatory science. This joint FDA/ASME conference provides a forum where participants involved in the development and evaluation of medical devices will meet and share their expertise, establish collaborations, and discuss strategies to effectively utilize computational modeling to support translation of device concepts to successful clinical products. Technical papers, posters and invited talks will be presented to highlight the latest developments in computer methods and best practices in computational modeling and simulation of medical devices.

Join top experts from academia, industry, regulatory and clinical practices and share your latest technology developments and clinical discoveries for a stimulating exchange. Our 2013 program will be co-chaired by Walt Baxter, Medtronic, and by Donna Lochner of the Food and Drug Administration.

Technical Papers and Posters will be accepted in these areas:

- Advances in model and simulation development
  - Geometry and Architecture
  - Material Properties and Constitutive Laws
  - Simulated in vivo boundary conditions
  - Numerical implementation and discretization
- Design and development of medical devices
  - Virtual prototyping
  - Probabilistic methods (e.g., Design of Experiments)
  - Design verification and validation using computer modeling
  - Role of computer modeling in novel device concept development
  - Role of computer modeling in product line extension
  - Multi-physics simulation for combination medical products
- Evaluation of medical devices and advanced medical imaging techniques
  - Simulated environments for virtual surgery
  - Biocompatibility assessment
  - Safety and drug eluting profile simulation of drug eluting devices
  - Statistical and Probabilistic Methods
- M&S Verification, validation and uncertainty quantification
  - Validated models and simulations of medical devices
  - Identification and quantifiable uncertainty
  - Use of evidence-based comparators for validation
    - Animal models, physical tests, clinical data sets
- Computational models and simulations that are medical devices
  - Diagnostic devices
- Other novel technologies with potential impact on medical devices
  - Multiscale physiological modeling from molecular and cellular scales to whole organ
  - Regulatory, Legal, and Commercialization issues dealing with computer methods

Look for an official Call For Abstracts coming SOON!
Future Conference Announcements

7th WORLD CONGRESS OF BIOMECHANICS

IN CONJUNCTION WITH:
World Council of Biomechanics
American Society of Mechanical Engineers
European Society of Biomechanics
US National Committee of Biomechanics
Global Enterprise for MicroMechanics and Molecular Medicine

JULY 6-11 2014
John B. Hynes Veterans Memorial Convention Center
900 Boylston Street
Boston, Massachusetts 02215 (USA)

The World Congress of Biomechanics is an international meeting held once every four years, rotating among Europe, Asia and the Americas. This, the 7th WCB, will once again bring together bioengineers, life scientists and medical researchers from around the world for 5 days of in-depth discussions and presentations. Vendor exhibitions will highlight the latest technologies, publications, and medical devices.

Plan to join us in Boston, just following the US Independence Day festivities on July 4th.

www.wcb2014.com
# ASME BED Roster 2012-2013

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