American Society of Biomechanics

Founded 1977



www.asbweb.org

In this issue

pa	ag
From the President	
Student's Corner	
Education Committee	
Secretary/Membership	;
Program Chair	1
Treasurer	1
A View From the Blue	1
Events Calendar	1

Newsletter

Volume: 24 - Number: 1, June 2011

From the President Jill McNitt-Gray

The ASB Executive Board and associated committees have been working this past year on the functional infrastructure that fosters research and education initiatives identified in our strategic plan. What continues to be unique about the American Society of Biomechanics is the diversity of the membership and our approach to problems from multiple perspectives. When we renew our ASB membership each year, in addition to supporting year-round mentoring, research, education, regional meetings and service activities, we are asked to identify a subdiscipline of primary interest: biological sciences, engineering and applied physics, ergonomics and human factors, exercise and sport sciences, and health sciences. We ask this question because operationally we as a society use these self-selected distinctions to be sure our leadership reflects the diversity of our membership. In addition, the ASB Executive Board uses this information in the membership database to form committees with members with ties to each of these five subdisciplines within biomechanics.

I must admit, the more I participate in ASB activities, the harder this question becomes for me. Many of us have had various zig-zag career development pathways. Looking at my own path (figure below), I began as a mathematician in an area disconnected from each of these disciplines. Now, I find myself some 20 or so years later having a peer-reviewed publication in each of these subdisciplines. My line of research related to control and dynamics of movement continues to be the same but the relevance of the work is embedded in these areas and is in part, a byproduct of being part of this unique ASB community. Furthermore, my role as Faculty and an advisor of undergraduate and graduate students in my own institution spans three departments (Kinesiology, Biological Sciences, and



Biomedical Engineering) and involves active collaborations in both ergonomics and health sciences.

In short, it is important to answer this subdiscipline question so that we can involve you in the ongoing process of tending to key bridges between ASB and the other professional societies that involve biomechanics. Advances in multimedia and internet-based resources are currently being explored with NIH, NSF, and ISB as means of actively engaging the membership and the broader community throughout the year. Online conferencing addressing topics ranging from educational best practices to administrative strategies for promoting interdisciplinary collaborations are being explored as vehicles to raise awareness of the many contributions of our ASB members and to promote outreach and support mentorship at multiple levels. We are looking forward to discussing this further as part of the ASB Business Meeting in Long Beach, CA in August of 2011!

Student's Corner Meghan Vidt

Spring has sprung here in North Carolina and the azaleas and dogwoods are in full bloom for as far as the eye can see. But, more importantly, spring means that the next ASB Annual Meeting is quickly approaching. This year's meeting will be held in Long Beach, CA from August 10-13, 2011. There will be many events for students to participate in this year, and I hope you consider joining your fellow student members for any or all of them! However, to participate in some of these events, you must be a current ASB student member, which is quick and affordable (only \$15!) to do. Please see the ASB website for additional membership information.

Activities planned for this year's conference include the one-on-one Student Mentoring Program, the Student Event, the Women in Science Breakfast, the Diversity Luncheon, and a Night Out on the Town. For the Student Mentor Program, interested students will be paired with a biomechanist sharing similar research interests to the student. The objective of the Mentor Program is to facilitate interactions between students and members through one-on-one conversations. I will be e-mailing the student membership soon regarding participation.

The program for this year's Student Event has been modified from previous years' events. Please plan to join us on Wednesday, August 10, 2011 to discuss how to make the most of the ASB meeting. There will be a variety of speakers, including members and students, who will be covering networking within ASB, tips and suggestions for effective poster and podium presentations, an overview of the Regional meetings from the student perspective and ways in which you can become more involved with ASB.

The Diversity Luncheon will be held on Thursday, August 11, 2011. Please join fellow ASB members and students for discussion over lunch. This is a great opportunity for those of diverse backgrounds to network with one another, discuss specific issues, and discover additional resources that may be unique to you. Additionally, the Women in Science Breakfast will be held on Friday, August 12, 2011. This event will foster discussions between members and students in a casual setting. The breakfast allows women to share their unique experiences through small group discussions. Because of the success of this event in previ-



Editorial Board

Editor & Layout Michelle Sabick msabick@boisestate.edu

Calendar & Advertising William Ledoux wrledoux@u.washington.edu

Advertising in the Newsletter

The Editorial Board invites various businesses that have products or services of interest to members of the Society to advertise in the ASB Newsletter. Advertising space may also be purchased for job postings or other specialannouncements.

The current advertising rates are as follows:

1/4 page--\$100 1/2 page--\$200 full page--\$400 back page--\$600

If you are interested in learning more about advertising in the ASB newsletter, please e-mail William Ledoux:

wrledoux@u.washington.edu



ASB Involvement

If you are interested in becoming more active in the Society (e.g., serving on a committee or chairing a conference session), contact Michael Madigan, Secretary/Membership Committee Chair, with your name, address, phone/fax number, email address, and your desired involvement. This information will be included in a database which is periodically updated and distributed to the Executive Board.

Back Copies of the Newsletter

All previous ASB newsletters have been converted into pdf documents and are archived on the ASB website. ous years, reservations will be required for attendance. I will send out an e-mail requesting reservations to attend each of these events in the coming weeks – you don't want to miss them!

This year, the Student Night Out will be held on Thursday, August 11, 2011 at Rock Bottom Brewery. This will be a great opportunity to mix, mingle, and network with other students in a casual, relaxed setting. While students are on their own for any food or drinks, the brewery provides plenty of space outside the Westin for networking. Please plan to join your fellow ASB students for a microbrew and some great conversation!

All the events for the Annual Meeting are exciting to plan, but there has been some additional activity outside of conference activities. This winter, the first Student Advisory Committee was formed. Please join me in congratulating Boyi Dai, Jason Franz, Tarang Jian, and Tara Kajacks on their appointments. The purpose of this committee is to facilitate communication between the Executive board and the ASB student membership. We are also working together to brainstorm innovative ways in which ASB can better serve its membership and provide more opportunities for student involvement with ASB. So, if you have any ideas or suggestions you would like the committee and ASB to consider, you can e-mail me.

One immediate way to become more involved with ASB is to volunteer your website design skills! The Executive Board is seeking a student who has experience with webpage design using Dreamweaver. This person will work primarily with the Communications Chair, Zong Ming, to enhance and update the ASB website. If you are interested, please e-mail me for more information.

Tekscan

IMPROVE GAIT ANALYSIS WITH PRESSURE MAPPING



Contact us today! 800.248.3669 WWW.tekscan.com

With the Annual Meeting quickly approaching, be on the lookout for emails from me regarding participation in the student-mentor program and reservations for the Women in Science and Diversity events. Also, make sure you receive a confirmation from me that your name is on the list. Don't forget to check for updates on the ASB Annual Meeting Facebook page as we get closer to the Annual Meeting. Wow! There's certainly a lot going on in ASB! I wish evervone the best of luck as the spring semester winds to an end. I look forward to seeing you in Long Beach!

Education Committee

As school years wind to an end this month, it is an appropriate time to reflect on education and our individual and collective roles in the greater educational endeavor. ASB has historically maintained a perspective which promotes the engagement of students in biomechanics through research grants, regional conferences, reduced conference registration fees, tutorials and other student centered activities. Some of these are described below. All of these existing programs have been successful and greatly appreciated efforts aimed primarily at graduate students and their research needs. While each year a few undergraduate students may attend our conferences, it is relatively rare. Most bachelors level students will know little about biomechanics. And one step further back, high school science courses rarely include biomechanical perspectives in their curricula.

The interdisciplinary characteristics of biomechanics provide unique connections and perspectives on science which are not found in many other disciplines. Could these be used to enhance the effectiveness of science, technology, engineering, and mathematics (STEM) education? I believe the answer to that question is yes. Do we have responsibility and capability to influence STEM education in positive ways? Yes, as scientists who have all benefited from our educational opportunities we also have responsibility to contribute to education beyond the demands of our jobs. And yes, there is considerable capability in the ranks of biomechanists who gather at our annual ASB conference.

As a scientific society, ASB has not yet found its own strategy for contributing to the strengthening of STEM education. The ASB executive board has expressed interest in contributing in some way to STEM education but specific projects have yet to be initiated. We need some additional ideas and ask the membership to brainstorm this issue--*How can ASB help to strengthen science education? What role should the society play in this regard?* Your thoughts and ideas are most welcome; send them to me via email or stop me to talk at the conference in Long Beach.

Major educational tasks of the last months have included solicitation and review of submissions to the society's graduate student Grant-in-Aid awards (GIA) and the various regional ASB conferences this spring. Here are updates on these programs:

Twelve submissions were received for the GIA program this year--a modest increase from the 9 of last year. The review committee (Kimberly Bigelow, Ajit Chaudhari, Roger James, Douglas Powell, and Meghan Vidt) scored each proposal with an evaluation based on background, significance, methods, budget, and the student's experience/conditions. Overall scores were compiled and ranked prior to the committee discussion of funding of the top scoring projects. This year, the top five proposals were scored similarly and were all of very high quality. Each will receive funding of \$2000 to support graduate student research during the next 12 months. GIA award winners were:

Allison Altman from University of Delaware: Subject-specific Tibia Modeling of Impact Loading in Barefoot versus Shod Running



President

Jill McNitt-Gray University of Southern California Los Angeles, CA 90089 Phone: (213) 740-2492 mcnitt@usc.edu

President Elect

Don Anderson University of Iowa Iowa City, IA 52242 Phone: (319) 335-8135 don-anderson@uiowa.edu

Past-President

Tom Buchanan University of Delaware Newark, DE 19716 Phone: (302) 831-2401 buchanan@udel.edu

Secretary/Membership Chair

Michael Madigan Virginia Tech Blacksburg, VA 24061 Phone: (540) 231-1215 mlm@vt.edu

Treasurer

Gary Heise University of Northern Colorado Greeley, CO 80639 Phone: (970) 351-1738 gary.heise@unco.edu



ASB Executive Board 2010-11

Program Chair

Wendy Murray Northwestern University Chicago, IL 60208 Phone: (312) 238-6965 w-murray@northwestern. edu

Program Chair Elect

Elizabeth Hsiao-Wexler University of Illinois at U-C Urbana, IL 61801 Phone: (217) 333-3415 ethw@illinois.edu

Meeting Co-Chairs

George Salem & Chris Powers University of Southern California Los Angeles, CA 90089 Phone: (323) 442-3113 (323) 442-1928 gsalem@usc.edu powers@usc.edu Laura Chernak from University of Wisconsin-Madison: Dynamic Imaging of in vivo Tendon Mechanics using Ultrasound Elastography

Crystal Massie from Colorado State University: Biomechanical Analysis of Upper-Extremity Reaching Paradigms in Survivors of Stroke

Pranav Parikh from University of Iowa: Effects of Transcutaneous Electrical Nerve Stimulation on Sensorimotor Functions of the Hand and the Cortical Plasticity in Healthy Old Adults

Laura Pauwels from Texas Tech University: The Effects of Altered Muscle Stiffness on Gene Expression in Response to Exercise in Elderly Rats

Congratulations to each of the winners and thanks to the evaluation committee members for their work reviewing proposals!

Regional ASB conferences proposals were received in the Fall and funding was distributed to four conference organizing groups as announced previously. Successful meetings were held in February and April:

February 25-26

South Central ASB Regional Meeting Texas Scottish Rite Hospital for Children, Dallas, TX

February 25 8th Annual Human Movement Science Research Symposium University of North Carolina at Chapel Hill

April 8-9

Rocky Mountain Regional ASB Meeting Estes Park, CO

The final regional conference was held earlier this month:

June 3-4

Northwest Biomechanics Symposium University of British Columbia, Vancouver

All of the regional conferences focus on student participation and foster networking with other students as well as established researchers of the region. Costs are minimized for students so major expenses of the conference are covered by funding from ASB, industrial and academic sponsors. The society encourages other groups to submit proposals for the coming year and seeks to distribute the meeting locations widely throughout the country. **Deadline for regional conference proposal submission for next year is September 30, 2011**.

Editor's Note: Check out the "Teaching Undergraduate Biomechanics Symposium" at the Annual Meeting in Long Beach

LESS MAINTENANCE GREATER TORQUE MORE MOTION

FORCE 5

FORCE AND MOTION







- Increased range of motion replicates joint movement during activities of daily living.
- Improved diagnostics
- New safety features



www.AMTI.biz

Over 40 Years of Precision Motion Measurement!

- True 6DOF Data in Real Time
- Speed up to 240 Hz
- Accuracy up to 0.75 mm
- No Calibration Required
- Check out G⁴--Our Latest 6DOF Wireless Tracker

www.polhemus.com/biomechanics 802-655-3159 / US & Canada: 800-357-4777

G⁴ is a trademark of Polhemus







Secretary/Membership Chair Michael Madigan

Greetings from Blacksburg, Virginia where the temperatures are rising, the trees are budding, and the flowers are blooming.

It is healthy for the society to periodically look at the demographics of the membership to understand who we are and to help maintain diversity. As of May 1, 2011, we had 476 Regular members and 245 Student members. The gender breakdown is 73% male and 27% female. Upon becoming members of ASB, we were all asked to select our research discipline from among five choices. The distribution of research disciplines is shown below.



In terms of geography, we have 664 members from the United States and 57 members from outside of the US including 38 from Canada, 8 from UK, and 2 from Netherlands. Among members from the US, more of us are from California than any other state, with the number of members from the top 13 states shown below. A total of 62% of us live east of the Mississippi River, 22% of us live in the Rockies or west, and 16% of us live between these two extremes. Interestingly (or hardly), 24% of us live in states that start with a vowel, and 2% of





ASB Executive Board 2010-11

Education Committee Chair

Gerald Smith Utah State University Logan, UT 84322-7000 Phone: (435) 797-8845 gerald.smith@usu.edu

Communications Committee Chair

Zong-Ming Li Cleveland Clinic Cleveland, OH 44195 Phone: (216) 444-1211 *liz4@ccf.org*

Newsletter Editor

Michelle Sabick Boise State University Boise, ID 83725-2075 Phone: (208) 426-5653 msabick@boisestate.edu

Student Representative

Meghan Vidt Wake Forest University Winston-Salem, NC 27157 Phone: (336) 716-4836 mvidt@wfubmc.edu us live in states that start with the letter "N" and conduct research in the Health Sciences. If you have a vested interest in the Ohio State - Michigan rivalry, those two states are tied at 29 members apiece. Okay, I'm going a little overboard with this stuff. I think some of it is interesting, though.

If your contact information has changed recently, please be sure to update our database. This data can be useful for the society in our strategic planning.

The Membership Committee made a concerted effort back in December to reach out to our corporate friends and try to recruit additional corporate members to ASB. After a flurry of communication over the last few months, I am happy to report that we were successful in recruiting three new corporate members. The willingness of these companies to become more involved with ASB was, without a doubt, largely due to the positive experience the vendors had at our Annual Meeting in Providence. Simulia is now a Sustaining Member of ASB, which is our highest level of corporate membership. Simulia specializes in computational software for Finite Element Analysis and other simulation software. C-Motion and Polhemus are now Supporting Members of ASB. C-Motion makes software for biomechanical modeling and analysis. Polhemus offers a variety of products for motion tracking. These three new members join our three continuing corporate Partner Members including Tekscan, PhoeniX Technologies Incorporated, and Northern Digital. Tekscan sells a variety of products for force/pressure measurement. PhoeniX Technologies Incorporated and Northern Digital both sell motion capture systems that offer unique features and capabilities. We encourage you to patronize our generous corporate members.

In the coming few months, we will be having another election to elect the President-Elect and 2013 Program Chair. Thanks to Richard Hughes and Dan Ferris for volunteering to serve on the nominating committee. Look for an email in your inbox with a link to place your vote.

Don't forget to renew your membership for 2011, and see you in Long Beach.

I will leave you with a quote that address a source of frustration that I'm sure many of us has shared. This frustration is when theory and practice do not match.

"In theory, there is no difference between theory and practice. But in practice there is." Jan L.A. van de Snepscheut

Program Chair Wendy Murray

While final details of the podium and poster presentation schedule are currently in progress, information is being updated regularly on Facebook, the meeting website, as well as here.

Highlights of the 2011 Annual Meeting include:

- Tutorials: "*Plasticity of Muscle Mechanics*" (Professor Rick Lieber) and "*Visual 3D: Inside the Black Box*" (Tom Kepple, MS and Scott Selbie, PhD).
- "Virtual" Lab Tours from the USC Biomechanics Community
- Keynote lectures: Professor Christine Ortiz and Professor Jessica Hodgins
- 2011 Borelli Award Lecture: Professor Scott Delp
- 2011 James J. Hay Award Lecture: Professor Joe Hamill
- ASB Young Scientist Pre-Doc Award: Curtis Goreham-Voss, University of Iowa
- ASB Young Scientist Post-Doc Award: Paul Ivancic, PhD, Yale University
- Invited Symposiums: "Upper Extremity Symposium on Wheelchair Biomechanics" organized by Philip Requejo, PhD and "Teaching Undergraduate Biomechanics" organized by Andrew Karduna, PhD.
- Opening Reception at the Aquarium of the Pacific and Conference Banquet aboard the historic Queen Mary.

To meet the increasing demand for participation at the conference, we have expanded the poster sessions at the 2011 Annual Meeting. In addition to 100 podium presentations selected from submitted abstracts, 345 abstracts have been accepted for poster presentation. Highlights of the expanded poster sessions include:

- Two 4 hour time blocks, with scheduled sessions to maximize interaction between attendees and poster presenters.
- Highlighted poster sessions for the *Journal of Biomechanics* and *Clinical Biomechanics* Award Finalists.
- **Simulia Computational Biomechanics Award**. One \$1000 award representing the "Best Computational Biomechanics Paper". Award winner to be announced prior to the meeting.
- Simulia Computational Biomechanics Student Awards. Three \$500 awards targeting student posters, highlighted in special sessions. The award winners will be selected by an awards committee assembled by the ASB Past-President. Decisions will be made during the course of the meeting based on scientific content and poster presentation and announced at the closing ceremonies.
- **Popular Choice Poster Award.** Interactive poster sessions where the conference attendees select their favorite poster from a group of abstracts representing the highest scored abstracts from the peer-review process.

Don't miss it! We are excited to see you in Long Beach!



To register online for the 35th Annual Meeting of the American Society of Biomechanics, click here. Enter the conference ESVP code: ASB2011

The annual meeting schedule is available here.



ASB Corporate Members 2011

Corporate membership categories are aimed at encouraging affiliation by commercial organizations that market products which are used by the biomechanics research community, or companies that are otherwise engaged in activities that fall within the Society's general interest areas. Companies wishing to become a Corporate Member are encouraged to contact Gary Heise, Treasurer.

The ASB Executive Board is pleased to recognize the following companies:

Sustaining Member Simulia

Supporting Members C-Motion Polhemus

Partner Members Tekscan, Inc. PhoeniX Technologies, Inc. Northern Digital, Inc.

Treasurer _{Gary Heise}

As our nation's economy recovers so too does the economy of the American Society of Biomechanics. If you have not renewed your ASB membership, please do so now. You can finish reading this scintillating article after your membership is up-to-date, plus you will feel much better. Membership dues represent a constant stream of income for the society, and since the 2010 Providence meeting, we are fortunate to welcome several new corporate members. See Secretary Mike Madigan's column or visit our website and please thank our corporate members at the upcoming Long Beach meeting in August. Thanks also to all new and continuing individual members of the society. Regular and student members are the financial backbone of ASB.

Another source of income for the society can be proceeds from the annual meeting. This is not a consistent stream of income because of the large amount of unknowns associated with hosting a large conference. For example, an exact number of attendees is difficult to forecast, conflicts with other professional meetings are always considered, but that effect is hard to predict, and the final balance sheet is not completed until after the conclusion of the conference. This prelude is intended to spotlight how difficult it is to "turn a profit" hosting an ASB annual conference. Therefore, if you see Providence meeting hosts Trey Crisco, Tom Roberts, or Doug Moore in Long Beach this summer, THANK them. The ASB conference held in Providence netted the society over \$10,000, a rare occurrence in our history and a monumental achievement given the nation's economic predicament over the last few years.

With the continued support of hundreds of individual members and continuing corporate members, the addition of new corporate members, and the success of the 2010 Providence conference, the financial health of ASB is good. From the mountain of financial data: Contributions to the Hay Award account continue (nearly \$400 this year). We offer thanks to all who contributed. Overall, the balance of our investment accounts was approximately \$147,000 at the end of 2010, which represents a 7.5% increase over the end of 2009. A complete report will be available at our business meeting in Long Beach.

Finally, if you do experience any difficulties with membership dues or with journal subscriptions purchased through ASB, feel free to e-mail me. Also, Elsevier subscriptions will likely increase next year, but the exact amount of that increase is unknown. Journal subscriptions from Human Kinetics and Elsevier (purchased through ASB) continue to be excellent bargains (for you higher education folks, ask your librarian sometime for comparison). If you STILL have not renewed your ASB membership, please do it NOW. See you in Long Beach.





- Kinematics
- Inverse Dynamics
- Inverse Kinematics
- Advanced Modeling
- Advanced Analytics
- Export to OpenSim
- Motion Capture System Independent
- Process EMG, instrumented treadmills, etc.



Explore, Discover, Innovate

Discover how leading medical device companies use realistic simulation to explore design options, discover new solutions, and drive innovation.

Learn how:

- Smith & Nephew Improves Performance of Knee Replacement Joints with Abaqus FEA
- Bausch + Lomb Brings Prosthetic Lens Insertion into Focus with Abaqus FEA
- Mobelife Leverages Realistic Human Simulation for Hip



Join the Realistic Human Simulation Community. Connect with researchers, and gain access to valuable publications related to RHS. Visit <u>www.simulia.com/rhs</u> and create your account to join. Download the latest issue of SIMULIA INSIGHTS.





35th Annual Meeting of the American Society of Biomechanics

August 10 - 13, 2011 Long Beach, California



Acquisitions Editor Biomechanics

Human Kinetics is the premier publisher in the physical activity field and one of the Top 10 Best Book Publishing Companies in 2008 & 2009. Join a team that is employee owned, offers competitive salaries, opportunities for advancement, excellent benefits, an on-site fitness facility & subsidized cafeteria.

Acquisitions Editor

Seeking an editor to independently conceptualize and acquire books, videos, ancillaries, software, and other electronic products as part of the Higher Education and Professional division. Responsibilities include identifying, recruiting, and contracting experts to review, write, and develop academic and professional products. Subject areas covered by this position include sports medicine (physical therapy, athletic training, occupational therapy, and massage therapy), cardiopulmonary rehabilitation, and biomechanics. Advanced degree in one of the aforementioned core subject areas required.

Send resume & cover letter to: HR, **Human Kinetics** PO Box 5076 Champaign, IL 61825 or email <u>HR@hkusa.com</u> - <u>www.HumanKinetics.com</u> – EOE

A View From the Blue Michelle Sabick

This month, I am going to focus more on general ASB business rather than the philosophical topics I have traditionally chosen. The Communications Chair, Zong-Ming Li, and I have been discussing the future of the newsletter and how it contributes to the Society's overall communications strategy. Organizationally, as the Newsletter Editor I am a member of the Communications Committee, which primarily oversees the ASB website and video archive. I also am supposed to have an active Advisory Board for the newsletter itself. However, these two committees seem a bit redundant to us. In fact, the use of a "print" newsletter (even though it is now distributed electronically and never printed by ASB anyway) is a bit old-fashioned. Many of our members, especially the student members, are much more attuned to communicating through social networking than the print media.

Based on this observation, and the desire to communicate with the membership on a more timely basis, I have put together American Society of Biomechanics sites on Facebook and Twitter. While the Executive Board is currently exploring how best to use these new media, we are hoping that you will "friend" or "follow" us so that we can provide up-to-date information on upcoming deadlines, such as early conference registration, graduate student grants-in-aid, and regional meeting. We are also interested in your feedback regarding how best to use these new communications media. Please contact me or Zong-Ming if you have any ideas.



Find us on Facebook or Follow us on Twitter

Facebook: American_Society_of_ Biomechanics

Twitter: @Am-SocBiomech







NOTE:

For a more comprehensive international listing, please visit ISB's website

Events Calendar William Ledoux

ASME Summer Bioengineering Conference

June 22 - 25, 2011, Farmington, Pennsylvania Abstract deadline - past www.asmeconferences.org/SBC2011/index. cfm

International Society of Biomechanics July 3 - 7, 2011, Brussels, Belgium Abstract deadline - past www.isb2011.org

European College of Sport Science July 6 - 9, 2011, Liverpool, United Kingdom Abstract deadline - past www.ecss-congress.eu/2011

Progress in Motor Control July 21 - 23, 2011, Cincinnati, Ohio Abstract deadline - ongoing homepages.uc.edu/~rileym/PMC/index. html

American Society of Biomechanics August 10 - 13, 2011, Long Beach, California Abstract deadline - past www.visitlongbeach.com/asb2011

ASME Computers and Information in Engineering Modeling and Simulation in Biomechanics SymposiumInternational August 28 - 31, 2011, Washington, DC Abstract deadline - past www.asmeconferences.org/IDETC2011/ CallForPapers.cfm

IEEE Engineering in Medicine and Biology Society August 30 - September 3, 2011, Boston, Massachusetts Abstract deadline - past embc2011.embs.org

International Research Council on Biomechanics of Injury September 14 - 16, 2011, Krakow, Poland Abstract deadline - past www.ircobi.org/conference.php

European Society of Movement Analysis for Adults and Children September 12 - 17, 2011, Vienna, Austria Abstract deadline - past www.esmac2011.com

Human Factors and Ergonomics Society

September 19 - 23, 2011, Las Vegas, Nevada Abstract deadline - past www.hfes.org/web/HFESMeetings/upcoming.html

European Cell Mechanics Meeting October 17 - 19, 2011, Amsterdam, Netherlands Abstract deadline - June 1, 2011 www.amolf.nl/cellmech2011

Symposium on Dynamics and Control of Biomechanical Systems November 11 - 17, 2011, Denver, Colorado Abstract deadline - past www.asmeconferences.org/congress2011/ CallForPapers.cfm

Orthopaedic Research Society February 4 - 7, 2012, San Francisco, California Abstract deadline - August 8, 2011 www.ors.org

American Academy of Orthotists and Prosthetists

March 21 - 24, 2012, Atlanta, Georgia Abstract deadline - July 30, 2011 www.oandp.org/meeting2011

Gait and Clinical Movement Analysis Society May 9 - 12, 2012, Grand Rapids MI Abstract deadline - TBA www.gcmas.org/conference2012

American College of Sports Medicine May 30 - June 2, 2012, San Francisco, California Abstract deadline - TBA www.acsmannualmeeting.org

International Foot and Ankle Biomechanics Community April 11 - 13, 2012, Sydney, Australia Abstract deadline - October 2011 www.i-fab2012.org

European Society of Biomechanics July 1 - 4, 2012, Lisbon, Portugal Abstract deadline - TBA www.esbiomech2012.org

Force plates

walking, running, jumping, balance, power analysis, and sports performance





Six-component force sensors

Visit our new Web site: WWW.AMTI.biz



Phone: 617-926-6700 Fax: 617-926-5045 www.AMTI.biz