# American Society of Biomechanics

Founded 1977



www.asbweb.org

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# Newsletter

Volume: 26 - Number: 2, December 2013

# From the President

Richard E. Hughes

Conflict of interest (COI) appears to be everywhere in the news these days. Examples range from Standard & Poor's rating bonds issued by the very institutions that are paying them to rate the bonds (is there any surprise that a bunch of high-risk sub-prime mortgages wrapped into a bond receives a AAA rating in this process?) to physician-owned medical device distributorships.



The impact of COI on orthopaedic surgery has become increasingly clear during the past year as recombinant human bone morphogenetic protein-2 (rhBMP-2) has gone from being a wonder treatment to a case study of the pernicious effect of COI on scientific integrity. The Food and Drug Administration (FDA) approved rhBMP-2 for single-level lumbar fusion when used within a metal cage in 2002. The approval was based on a series of clinical trials published in a number of journals, including *The Spine Journal*. In 2013, Dr. Eugene Carragee, who is the editor of that journal, co-authored a systematic review of the clinical studies used to support the claim rhBMP-2 is safe. The authors noted that the published clinical safety studies reported no adverse events. They also analyzed the data submitted to the FDA by the manufacturer (Medtronic) that showed adverse events in the trials. The published data on the safety of the therapy were misleading. Carragee and colleagues reported that the authors of the clinical trials were highly financially conflicted: "... the median-known financial association between the authors and Medtronic, Inc. was found to be approximately \$12,000,000-\$16,000,000 per study." The rhBMP-2 saga has been widely reported in the press and is seen by many as an example of how COI can negatively influence scientific integrity and medical care.

Consider a definition of COI from a 2009 Institute of Medicine report: "A conflict of interest is a set of circumstances that creates a risk that professional judgment or actions regarding a primary interest will be unduly influenced by a secondary interest." In the case of rhBMP-2, we would hope that the primary interest of clinical investigators is the full and honest reporting of all results pertaining to the safety and efficacy of rhBMP-2. The secondary interest would be financial gain from the clinical success of rhBMP-2. It is very important to note that this definition only discusses risk. The rhBMP-2 case teaches us that disclosure of COI provides information that can be used by the consumers of research findings (academic and non-academic) to manage and mitigate risks.

COI is also relevant to the presentation of data outside of medical product de-

Continued on page 3...

# Student's Corner

## Jennifer Bagwell

Fall has come again bringing beautiful autumn leaves and cool weather to most of the country; however here in Los Angeles this season has been marked by a resurgence of Ugg boots and continued 70 degree weather. Despite this unusual fall weather, time is moving on and the new year will be here soon. The end



of the year prompts reflection on the year's events and planning for the upcoming year. Student attendance and participation at the Annual Meeting in Omaha was outstanding. The Student Event on the opening day of the conference was attended by 82 students. Attendees listened to biomechanics experts discuss different career paths, including a presentation by Dr. Thomas Buchannan on securing a faculty position, Dr. Judith Burnfield on careers in clinical research, and Dr. Martyn Shorten on careers in industry. Following the presentations, these speakers were gracious enough to facilitate small group discussion and answer questions with students interested in more information regarding that particular career path. Another opportunity for students to seek career advice and network at the Annual Meeting was the Student Mentoring Program. An all-time-high 66 students and mentors participated this year. Thank you to the students who took part and especially to the mentors for volunteering their time for this activity. We look forward to continuing this program within the frame-work of the World Congress of Biomechanics meeting next year.

Other great networking opportunities at the Annual Meeting were the Women in Science Breakfast and the Diversity Luncheon. The Women in Science Breakfast had 74 people in attendance. This event featured short presentations by Dr. Jill McNitt-Gray and Dr. Karen Troy in addition to time for networking. The Diversity Luncheon was attended by 40 people this year. This event included roundtable brainstorming sessions and a discussion led by Dr. Katherine Saul regarding the role of diversity in our society and how best to advance this cause. As a direct result of the discussion at this meeting, a diversity task force has been chartered. If you are interested in serving on the ASB diversity task force or if you have suggestions regarding these efforts, please contact Dr. Katherine Saul at ksaul@ncsu.edu.

While student attendance was strong throughout the conference, the participation in the Student Night Out had the highest attendance at 83 students. This event took place at the Old Mattress Factory and featured a great supply of local brews. Appetizers were provided by ASB (this may have had something to do with the strong turnout). Thank you to all of the students who attended these events and made it a fun and productive conference! As we plan for the upcoming World Congress and future ASB Annual Meetings, suggestions for improving these events are greatly appreciated. Please email me at petersjj@usc.edu with any suggestions regarding student events at the Annual Meeting or any other issues pertinent to the ASB student membership. Good luck finishing the semester!





#### **Editorial Board**

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# Advertising in the Newsletter

The Editorial Board invites 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 special announcements.

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 email Dan Gales:

DGales@lhup.edu

**ASB Newsletter** 



#### **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 Andrew Karduna, 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.

# From the President (cont.)

## Richard E. Hughes

velopment. For example, forensic biomechanists know that the Supreme Court listed peer review as part of the criteria to be used in accepting scientific testimony. The court did not limit "peer review" to mean just archival journals; experts sometimes base testimony on conference abstracts. Since ASB abstracts are peer reviewed, having an abstract on the ASB program can have significant impact on the expert's ability to use her/his analysis in a court. Therefore, biomechanics experts presenting at the Annual Meeting should disclose if the content of their abstract is part of a pending legal case.

It is important to remember there is nothing inherently wrong with being conflicted. While a conflict of interest may increase risk, that does not mean anyone did something wrong. Disclosing COI is not an admission of malfeasance. Disclosure during a presentation at a national meeting is necessary for the audience to engage in risk assessment, i.e., making a subjective assessment of the risk that what they are hearing from the podium or reading at a poster is being influenced in some way that is not immediately apparent.

Many national scientific and medical societies – as well as academic medical centers and universities – have adopted COI management policies, more to prevent problems from arising than remedying COI mishaps. Society policies largely focus on COI disclosure at their national meetings. Earlier this year, the ASB Executive Board voted to adopt a statement on COI (see below). The statement is part of a long-term process to implement the ASB Strategic Plan, and it is consistent with the ASB Code of Conduct previously approved by the Executive Board. Since this coming year's meeting will be held in conjunction with the 7th World Congress of Biomechanics, we will adhere to their instructions on COI disclosure. In the future, ASB will implement COI disclosure in the way that is best suited to our society.

## **ASB STATEMENT ON CONFLICT OF INTEREST**

The American Society of Biomechanics (ASB) code of conduct briefly addresses Conflict of Interest (COI). This statement elaborates the ASB position on COI.

As a starting point, we begin with a definition of COI:

"A conflict of interest is a set of circumstances that creates a risk that professional judgment or actions regarding a primary interest will be unduly influenced by a secondary interest." (Lo, B. and Field, M.J., Eds. (2009) Conflict of Interest in Medical Research, Education, and Practice)

COI policies and statements are about managing and mitigating risks. Disclosure is an integral part of managing risks that arise in conflicted situations. The American Society of Biomechanics expects every presentation at its annual meeting to disclose all relevant COI.

Additionally, the American Society of Biomechanics expects that members will:

- Disclose all relevant COI in presentations, publications, and activities of the American Society Biomechanics.
- Recuse themselves from ASB business decisions when they have a COI.
- Remain cognizant that when a COI exists their duty is to hold paramount the safety, health, and welfare of the public.

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# **Education Committee**

#### Cécile Smeesters

First and foremost, I would like to thank my predecessor, Gerald Smith, for his past 3 years of service to ASB. He was of great help in initiating me into my new role as Education Committee Chair. I am looking forward to meeting the challenges of this position.



My first task was to compile the results of the ASB 2013 Annual Meeting survey. According to the 251 responses received, the Omaha, NE meeting was a resounding success. Congratulations to Nick Stergiou, Rakié Cham and their teams.

My second task was to review the regional conference applications with the ASB executive board. ASB regional conferences are student centered gatherings which provide an opportunity for graduate students, mentors, and other researchers to network and build collaborations as well as to practice scientific communication in a low key, supportive environment. This year, ASB will be supporting four regional conferences:

### Human Movement Science Research Symposium

University of North Carolina, Chapel Hill, NC February 21, 2014

#### Midwest ASB Regional Meeting

University of Akron, Akron, OH March 4-5, 2014

#### Rocky Mountain ASB Regional Meeting

YMCA of the Rockies Conference Center, Estes Park, CO April 11-12, 2014

#### Northwest Biomechanics Symposium

Willamette University, Salem, OR May 16-17, 2014

If you are interested in hosting a regional conference, applications for ASB support are due on September 30 each year. I would like to particularly encourage applications from the Northeast and Southwest regions, which haven't had a regional conference since 2007 and 2008, respectively.

My next task will be to review the graduate student Grant-In-Aid (GIA) applications with the Education Committee. Please note the application deadline for the GIAs has been moved to January 15, 2014. This has allowed me time to assemble a great group of ASB researchers to form a diverse Education Committee both by discipline and geography. We just finished reviewing the GIA guidelines so as to make them more explicit regarding the evaluation criteria and to regroup all the administrative information on a title page. They are otherwise nearly identical, except regarding two points: 1) only one GIA per academic advisor will be granted each year and 2) applicants will have to explain the relevance of their proposal to biomechanics. You will find the updated guidelines at: http://www.asbweb.org/awards-and-grants/asb-graduate-student-grant-in-aid/.



# ASB Executive Board 2013-14

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# ASB Executive Board 2013-14

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# Secretary/Membership

## **Andrew Karduna**

Last year at this time:

618 active ASB members: 8 Emeritus, 364 Regular and 246 Student.

## Currently:

750 active ASB members: 9 Emeritus, 459 Regular and 282 Student.

So I'm not sure what was put in the water in 2013, but we are in excellent shape. Let's see if we can keep it up for next year – please renew your membership for 2014 at www.asbmem.org. Go ahead, I'll wait.

OK, now that you are back, I want to talk with you about a membership issue. The membership committee had been discussing the best way to evaluate membership applications, when I stumbled upon this in the by-laws: "After the first general meeting, application for membership in the Society must be made in writing, be supported by at least two members of the Society, and be approved by the Executive Board." After checking with previous membership chairs, I have estimated that the number of members that have been approved with this process in the past twenty years is around zero. Keep in mind that this is only an approximate number - it is possible that one or two members were actually reviewed in accordance with our by-laws. To be clear, everyone approved for membership was reviewed. Just not correctly. I think.

Will we propose an amendment to the by-laws? Will we comply with the current system? Will we turn over the entire process to space aliens? Tune in next time to see how the membership committee resolves this problem. Same bat time, same bat channel. See you then.





## <u>Treasurer</u>

## **Karen Troy**

Happy December to all of you! This is my first official Newsletter column as your new Treasurer. I want to begin by thanking Gary Heise for his service as Treasurer and his patience with me as I learn the ins and outs of the job. If I can keep everything running as smoothly as he did, it will be a job well done.



Now let's talk finances. Due to the recovering economy and the overwhelming SUCCESS of our annual meetings over the last few years, our finances are in good shape. I'm providing a few highlights below, along with a summary of our big ticket items. Our long-term investments have improved because the stock market has improved; these total approximately \$170,000. Our president, Richard Hughes, has been working to complete a financial audit for the Society, and he and I will be working together over the coming year to make sure the long-term investments are allocated reasonably.

The society furnishes awards at the annual meeting (e.g., Borelli, Hay, Pre-Doc, Post-Doc), travel awards to students attending the meeting, regional meetings throughout the country and Grant-in-Aid awards. This year we are funding four ASB Regional Mid-Year meetings and are anticipating funding approximately five student Grant-in-Aid awards. Because next year's Annual Meeting will be part of the World Congress of Biomechanics, expenses related to several popular ASB-specific activities such as the Women in Science Breakfast will likely be subsidized by the society, but are not likely to be recouped through registration fees (because we don't collect them). We also incur operating costs such as web-based expenses (e.g., credit card processing, database operation), executive board mid-year meeting, bookkeeping and tax-prep services, and general office-related supplies. I am continuing to work with our bookkeeper Brenda Bowen in Greeley, Colorado. Over the past three years Brenda spent many hours working with Gary to reorganize our financial books, and I am looking forward to preserving her institutional knowledge going forward.

Our main source of income is your membership dues. Really. We don't charge you silly fees like making you subscribe to a journal or paying to submit an abstract. Incidentally, if you haven't renewed your ASB Membership for 2014, now is a great time to do so!





# ASB Executive Board 2013-14

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## 2013 Award Summary

#### **Borelli Award**

Kenton Kaufman, Mayo Clinic

## Jim Hay Memorial Award

Glenn Fleisig, American Sports Medicine Institute

# Pre-Doctoral Young Investigator

Arin Ellingson, University of Minnesota

## Post-Doctoral YoungInvestigator Award

Steve Collins, Carnegie Mellon University

#### Journal of Biomechanics Award

Peter Barrance, Kessler Foundation Research Center

# Clinical Biomechanics Award

Joseph Geissler, New Jersey Medical School and New Jersey Institute of Technology

#### **President's Award**

Rena Hale, University of Texas at El Paso

# **President-Elect**

## **Darryl Thelen**

Put your organization on the map! The ASB Executive Board invites proposals from potential hosts for the 2016 Annual Meeting. Our conference is regularly attracting 500-600 attendees from a diverse set of backgrounds, providing a great opportunity to showcase your biomechanics activities and local



sites. Proposals should define the local organizing group, set the meeting dates, and include a detailed description of the conference meeting site. Interested parties should send their inquiries to me at thelen@engr.wisc.edu and I would be happy to provide you with additional information and proposal templates. We anticipate reviewing potential hosts at the winter meeting of the ASB Executive Board in mid-February, so proposals need to be received before then.



Locations of previous ASB meetings.

Several of the ASB annual awards are not announced until the Annual Meeting, as such they are listed hereafter in full detail.

#### Journal of Biomechanics Award

Tibiofemoral Contact Location Changes Associated with Lateral Heel Wedging - A Study Using Weight Bearing MRI

Peter Barrance, Venkata Gade, Jerome Allen, Jeffrey Cole Kessler Foundation Research Center

## Clinical Biomechanics Award

Alendronate Treatment Elicits a Reduction in Mechanical Properties and the Density of Osteocyte Cells in Cortical Tissue

Joseph Geissler, 1,2 Devendra Bajaj, 1 Matthew Allen, 3 David Burr, 3 James Christopher Fritton 1,2

<sup>1</sup>New Jersey Medical School, <sup>2</sup>New Jersey Institute of Technology, <sup>3</sup>Indiana University

#### President's Award

Estimation of Individual Muscle Forces during Squatting and Lunging and their Load Effect on the Tibial Plateau

Rena Hale, <sup>1</sup> Matthew deBock, <sup>2</sup> and Roger Gonzalez <sup>1</sup>

<sup>1</sup>University of Texas at El Paso, <sup>2</sup>LeTourneau University

# Communications Committee Michelle Sabick

Greetings, everyone! The new ASB website has now been online for about three months, and I am proud to say that the kinks are being worked out of the system slowly but surely. Thanks to all of you who have sent me messages about missing content, broken links, etc. I have been trying to get all these issues cleaned up before moving on to adding new content to the site.



The big items that remain to be completed are the porting of the old conference websites to the ASB site, creating a template for future conference websites, and adding specific content to the student section and to the videos of the month. I will also be continuing to develop the Research Spotlight section to highlight interesting projects in each of the major membership categories of ASB (Biological Sciences, Ergonomics and Human Factors, Engineering and Applied Science, Exercise and Sport Science, and Health Sciences). So, if you have a project that you think should be highlighted, please let me know and I'd be happy to try to get your content up on the site. In the future, I hope that this Spotlight section will rotate every couple of months to feature different projects and different ASB members.

In the not-too-distant future I will be adding additional photos that many of you submitted to me, as well as photos from the annual meeting in Omaha. If you have other ideas about specific content that you think should be on the website, or other neat images, please also let me know. I would like to see the website become a dynamic and comprehensive resource for both ASB members and the general public.





#### Welcome

Welcome to the web site of the American Society of Biomechanics!

Biomechanics represents the broad interplay between mechanics and biological systems. The American Society of Biomechanics (ASB) was founded in 1977 to encourage and foster the exchange of information and ideas among

#### Mission of the ASB:

To encourage and foster the exchange of information and ideas among biomechanists working in different disciplines and fields of application, biological sciences, exercise and sports science, health sciences, ergonomics and human factors, and engineering and applied science, and to

#### Information Desk

The 38th Annual Meeting of the American Society of Biomechanics (ASB) will be held in conjunction with the 7th World Congress of Biomechanics (WCB) in Boston, Massachusetts from July 6-11, 2014

**Graduate Programs in Biomechanics** 

Videos of the Month



# Additional 2013 Awards

**ASB Fellows**Jill McNitt-Gray,
University of Southern

# Student Travel Awards

California

Abbie Ferris, University of Northern Colorado

Alan Cudlip, University of Waterloo

Ata Kiapour, University of Toledo

Dustin Crouch, VT - Wake Forest University

Federico Pozzi, University of Delaware

Leah Enders, University of Wisconsin-Milwaukee

Matt Coombs, University of Cincinnati

Michelle Hall, University of Melbourne

Nathan Pickle, Colorado School of Mines

Nicole Corbiere, Clarkson University

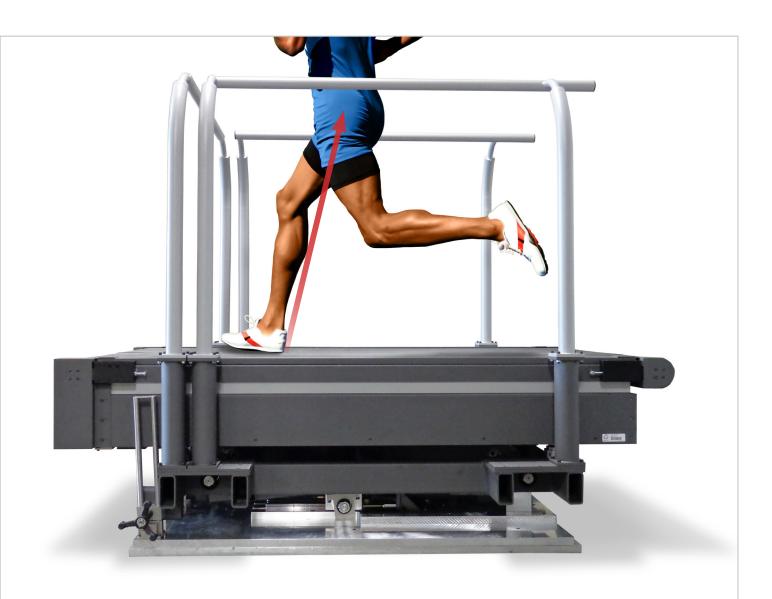
Rebecca Krupenevich, Eastern Carolina University

Sivan Almosnino, Queen's University

Taylor Dick, Simon Fraser University

Vara Isvilanonda, University of Washington

**ASB Newsletter** 



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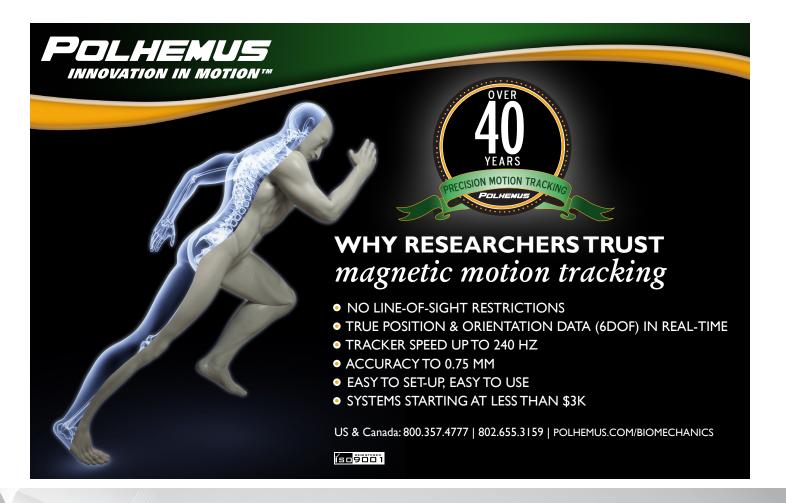
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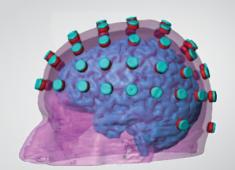
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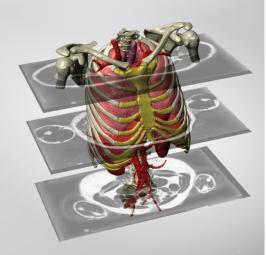
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Check in often for updates to the program on Facebook, Twitter, and the meeting website site.

# Program Chair

**Brian Umberger** 

The American Society of Biomechanics will hold its 38th annual meeting in conjunction with the 7th World Congress of Biomechanics (WCB) in Boston, Massachusetts from July 6-11, 2014. The WCB will take place at the Hynes Conven-



tion Center in the "Back Bay" neighborhood of Boston. The Congress venue is conveniently located within one mile of the Boston Common, Fenway Park, The Museum of Fine Arts, Symphony Hall, and the Boston Duck Boat Tours (for those of you wishing to relive the recent Red Sox World Series victory parade). The 2014 WCB will likely be the largest and most topically diverse biomechanics conference to date and is an event not to be missed. In addition to ASB, other participating societies include the Canadian Society for Biomechanics, European Society of Biomechanics, German Society of Biomechanics, International Society of Biomechanics, and American Society of Mechanical Engineering - Bioengineering Division.

The ASB-specific programming at WCB will include the Borelli award lecture, the Hay award lecture, five half-day symposia covering the five recognized disciplines within ASB, the pre- and post-doctoral young scientist award presentations, the Journal of Biomechanics and Clinical Biomechanics award presentations, and the recognition of new ASB Fellows. We are also working to maintain some of the other events typically associated with the ASB meetings, such as the Tutorials and Student Mentoring Program. The ASB-sponsored programming will be fully integrated into the overall WCB program, which the organizers expect to consist of 15-20 parallel podium sessions and multiple poster sessions. The topics at WCB will span from molecular to whole-organism, and will include basic, clinical and applied research. Thus, there will be the opportunity to see presentations on familiar topics, as well as the chance to expand your horizons and learn about biomechanics research not usually represented in ASB. What the WCB may lack in terms of the intimacy of a typical ASB meeting, it should more than make up for in topical breadth and diversity.

At the time this article goes to press, the registration and abstract submission periods will be well underway. All attendees of the WCB, regardless of society affiliation, will register for the Congress and submit abstracts through the WCB website at http://wcb2014.com. Early registration fees are \$500 for regular attendees and \$325 for students. While hotel prices in Boston run on the high side, the WCB organizers have secured discounted rates at several hotels near the Congress venue, including heavily discounted student rates at some of the hotels. All travel and lodging details may be found on the WCB website. While there are numerous hotels near the convention center, the well-developed public transit system in greater Boston (the MBTA system) makes it possible for bargain hunters to consider hotels outside of the city center and rely on the subway (the "T") to get to the conference each day. Most people attending the WCB will arrive at Boston Logan International Airport. Taxis are the easiest way to get from the airport to the convention center with a fare of about \$25. It is possible to take public transportation from the airport to the convention center for a fraction of that cost, but it will involve a bus and two separate subway lines and will take 45-60 minutes to travel approximately 3.5 miles. See the WCB website for a link to the MBTA trip planner for public transit options.

# Program Chair (cont.)

## **Brian Umberger**

The two most important deadlines to make note of are January 15, 2014, which is the last day to submit abstracts, and April 20, 2014, which is the last day to qualify for the reduced registration fees. Also, we cannot count on the de facto two-week extension to the abstract deadline that has become the norm with ASB annual meetings. Be sure the check the WCB website at http://wcb2014.com for updates and general information about the Congress. I look forward to seeing everyone in Boston next July!







# **ASB Corporate Members 2013**

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 Karen Troy, Treasurer.

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

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# Umbrellas are for Tourists

William Ledoux

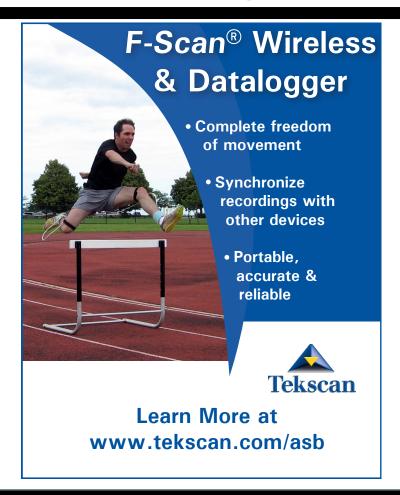
Happy Holidays ASB Members! I hope this newsletter finds you well. Despite my best intentions to write an interesting article and to have this out well before the holidays, that clearly did not happen and Christmas in nearly upon us. As I had served a long apprenticeship under other editors, for this edition of

the newsletter I had planned to write about famous apprentices. However, given the late date, I have decided to not delay any longer and instead will attempt to send this out before Christmas Eve. As I struggle with this, and with all the other pressures we biomechanists deal with – grant deadlines, publish or perish, teaching, advising students, analysis of long ago collected data sets, etc. - I am reminded that it is important to find time for the many significant things outside of work: family, friends, exercise, hobbies, etc. We all have to strive to find balance in our personal and professional lives, something I know that I sometimes (like now!) wrestle with. So on that note, I leave you with this very brief





editorial as I head off to take some last minute photos with Santa Claus!





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Tenure-Track **Assistant** Professor Biomechanics, with sub-specialization Motor Behavior, will be available at California State University, Bakersfield. beginning September 2014.

Ph.D., or ABD, from an accredited doctoral-Documented record of granting institution. successful undergraduate teaching demonstrated commitment to professional and scholarly activity. Detailed position description, requirements, qualifications, including application procedures are available http://www.csub.edu/facultyAffairs/recruitment/e mployment/tenure/SSE/PEAK/TT-PEAK-2014.pdf.

Nominations are welcomed and encouraged. Contact: Ms. Kris Grappendorf, Interim Chair, Department of Physical Education & Kinesiology, School of Social Sciences & Education, 661-654-2378 or kgrappendorf@csub.edu.

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**NOTE:** 

For other listings of

international confer-

either the ISB's web-

ences, please visit

site or Biomch-L.

# **Events Calendar**

#### **Dan Gales**

# National Association for Kinesiology in Higher Education

January 8-11, 2014, San Diego, California Abstract deadline – past nakhe.org/node/3

# American Academy of Orthotists and Prothetists

February 26-March 1, 2014, Chicago, Illinois Abstract deadline – past www.academyannualmeeting. org/2014

#### American College of Sports Medicine May 27-31, 2014, Orlando, Florida

Abstract deadline – past www.acsmannualmeeting.org

# American Physical Therapy Association

June 11-14, 2014, Charlotte, North Carolina Abstract deadline – past www.apta.org/NEXT/Overview

# International Conference on Neuro-Rehabilitation

June 24-26, 2014, Aalborg, Denmark Abstract deadline – February 1, 2014 www.icnr2014.org

# Gait and Clinical Movement Analysis Society

June 24-27, 2014, Newark, Delaware Abstract deadline – January 10, 2014 www.gcmas.org

#### Nat. Athletic Trainers' Association

June 25-28, 2014, Indianapolis, Indiana

Abstract deadline – TBA www.nata.org/annual-meeting

#### World Congress of Biomechanics

July 6-11, 2014, Boston, Massachusetts Abstract deadline – January 15, 2014 wcb2014.com

# International Symposium on the 3-D Analysis of Human Movement

July 14-17, 2014, Lausanne, Switzerland

Abstract deadline – January 25, 2014 *3dahm2014.epfl.ch* 

# International Calgary Running Symposium

August 14-17, 2014, Calgary, Alberta, Canada Abstract deadline: April 30, 2014 www.calgaryrunningsymposium2014.

# IEEE Engineering in Medicine and Biology Society

August 26-30, 2014, Chicago, Illinois Abstract deadline: January 13, 2014 *embc.embs.org/2014* 

# International Functional Electrical Stimulation Society

September 17-19, 2014, Kuala Lumpur, Malaysia Abstract deadline – TBA www.ifesskl2014.um.edu.my/iF-ESS2014

# European Society of Movement Analysis for Adults and Children

September 29-October 4, 2014, Rome, Italy Abstract deadline – April 25, 2014 www.esmac-siamoc2014.com

# Human Factors and Ergonomics Society

October 27-31, 2014, Chicago, Illinois, Abstract deadline – March 3, 2014 www.hfes.org

# 9th Triennial Symposium of Hand and Wrist Biomechanics International

In conjunction with the XXth Congress of Federation of European Societies for Surgery of the Hand June 16-17, 2015, Milan, Italy Abstract deadline – TBA www.hwbi.org

#### American Society of Biomechanics

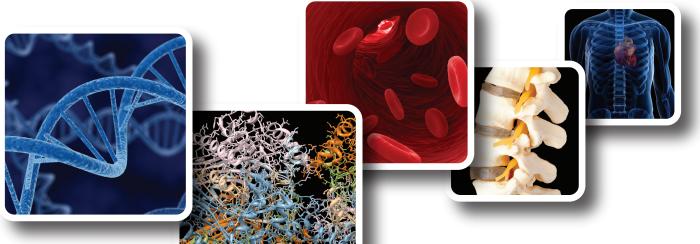
August 5-8, 2015, Columbus, Ohio Abstract deadline – TBA www.asbweb.org

# International Society of Biomechanics

July 12-16, 2015, Glasgow, United Kingdom Abstract deadline – TBA www.isbglasgow.com



# 7th WORLD CONGRESS OF BIOMECHANICS



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

FEATURING A STUDENT PAPER COMPETITION, SPONSORED BY ASME BIOENGINEERING DIVISION

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American Society of Biomechanics

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European Society of Biomechanics

Global Enterprise for MicroMechanics

and Molecular Medicine

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# JULY 6-11 2014

John B. Hynes Veterans Memorial Convention Center Boston, MA