

# American Society of Biomechanics Newsletter

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## From the President

Mark D. Grabiner

Transitions...they are constant in our daily personal and professional lives. Although I have tried to expect transitions, there are those that occur that still cause me to take pause. There have been a number of transitions recently that merit our taking note. Recently, Dr. Gerrit Jan van Ingen Schenau of the Netherlands died on April 2 of cancer. I did not know Dr. van Ingen Schenau, but one need not have known the man to be aware of his numerous influential contributions to biomechanics in areas including speedskating, movement energetics, and coordination of multiarticular muscles. He contributed enormously to the general understanding of muscle coordination during human movement, energetics of movement, and the special functions of biarticular muscles. Dr. van Ingen Schenau will be missed by the international biomechanics community.

Another notable transition that merits mention is that Dr. Jim Hay, a member of the faculty of the University of Iowa since 1971, will be retiring effective this August. Jim and his wife Hilary will be returning to their native New Zealand. Jim has been at the forefront of sports biomechanics, seemingly for as long as there has been a recognized academic pursuit called sports biomechanics. He has contributed to nearly 150 manuscripts in the literature and 10 books. One of his books, *The Biomechanics of Sports Techniques* is now in its fourth edition. Over the years, Jim served as mentor to 16 PhD and 6 Masters students, many of whom have, themselves, continued to make substantial contributions to not only sport science but also biomedical research. There is one accomplishment of which many may be unaware. In the history of the American Society of Biomechanics, Jim is singular in that he served two consecutive terms as President. This caused me no small amount of anxiety when, during my first few weeks as ASB Secretary-Treasurer, I realized that I might have had all of the ASB letterhead misprinted. Jim, on behalf of ASB I would like to thank you for your long history of contributions to the Society and to the field of biomechanics. We all wish you the most happy of times yet to come. As a postscript, the Executive Board recently voted to name Jim an Emeritus Member of the American Society of Biomechanics effective in 1999.

The last transition that I would like to mention relates to this year's election slate for President-Elect. It is clear that ASB will

soon have a woman President for the first time since Doris Miller served in that capacity in 1983-84. I personally feel that this marks an important landmark in the history of the Society and I am pleased that it just happened to coincide with my "watch". However, the work of developing the election slate fell to the Past-President, Bob Gregor and the Nominating Committee. The nominating process is broadly defined by the ASB By-Laws and this year, despite the exciting slate that emerged, there were some logjams that arose due to the constraints placed upon the process by the By-Laws. This has caused some of us on the Executive Board to question whether certain By-Laws should be revisited and modified to benefit today's Society. This reflects Society business to which the Executive Board invites the input of the membership. The Executive Board has been quite active attending to the business of the Society since the Clemson meeting. I am pleased to report to you on some of the details of this activity. A fuller accounting of these and other items will be provided at the Business Meeting during the upcoming NACOB meeting.

The site of the 1999 ASB Annual meeting was recently decided upon. The meeting will be held at the University of Pittsburgh and Dr. Savio Woo, former ASB President and Borelli Award winner, and Dr. Jun-Kyo Suh are the meeting organizers. We are already anticipating the stimulating scientific and social events that are a signature of our annual meetings. In the summer of 2000, ASB has agreed to hold its annual meeting in Chicago, in

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conjunction with the AIMBE (The American Institute of Medical and Biological Engineering) annual event. The Executive Board is presently soliciting proposals from members to host the annual meeting in the year 2001.

Serving as Meeting Chairperson is recognizably a time consuming, detail-riddled task although it is not without its rewards. As a national society, it is in the best interests of ASB to plan its meetings to be geographically equitable and thus, we are sensitive to the fact that the 1995 Stanford meeting was the last time we gathered west of Iowa City. Indeed, if we can hold our meeting in the West in 2001 it will have been a six year hiatus and this is considered too long. Nevertheless, we are dependent on having, in hand, a proposal to consider convening a meeting at any location. In response to the possibility that providing a source of planning assistance might encourage more members to think about hosting an ASB meeting, the Executive Board has recently formed a new committee. The Conferences and Special Events Committee will serve, in part, to assist Meeting Chairpersons and potential Meeting Chairpersons attend to the myriad details that are necessary to plan an annual meeting having the quality to which ASB has become accustomed. I am particularly pleased that Dr. Alan Litsky, the organizer of the 1994 Ohio State meeting has agreed to Chair this committee. Other committee members include Glen Flesig, Vasanti Gharpuray (organizer of the Clemson meeting), Steve Kautz, Karen Perell, Tony Marsh, Steve McCaw and Peter Vint. Tony Marsh and Peter Vint have taken on the responsibility of organizing the first ASB regional student meeting. This meeting, the details of which may begin to take form soon, is presently planned to occur during 1998.

The regional student meeting, along with the Graduate Student Grant-in-Aid Program (now in its second year), the decision to continue the student travel award program, and the expansion of other vital Society functions have increased ASB's operational costs. Operational costs are budgeted through revenues generated almost entirely through membership dues. Yearly ASB membership dues are \$25 if you are a regular member and \$15 if you are a student member. A review of the record has revealed that it has been at least 12 years since the regular membership dues have been increased. The Executive Board has carefully reviewed the financial position of the Society. It is clear that the growth of revenues derived via membership dues has not kept pace with the increase in expenditures related to the Society's basic operational costs and its expanded programmatic interests. As a result, as of 1999, the membership component of the yearly dues will be increased by \$15, to \$40 per year, for regular members. There will be no change in student member dues.

Unfortunately, the increase in regular membership dues will also be accompanied by an increase in the cost of the *Journal of Biomechanics*. Elsevier Science LTD, the publisher of the *Journal of Biomechanics*, has informed the Society that their increased publication costs will translate to the increased cost of subscriptions for members. Clearly, this is something completely outside the control of ASB. However, to obtain the lowest possible subscription price to the *Journal of Biomechanics*, the Society has entered into an agreement with Elsevier that has fixed

increases in the subscription costs over the next three years. The costs to ASB members for the *Journal of Biomechanics* will be \$61, \$66 and \$71 for 1999, 2000, and 2001, respectively.

I will close by saying that it has been a privilege to serve this year as President of ASB. It has afforded me the opportunity to work with, and grow to know, a group of talented and creative scientists who came together and quickly developed as a cohesive team to accomplish the established objectives to the best of our collective ability. Of course, it has been as such since the inception of the Society. The growth of the Society and its present strength reflects the collective efforts and vision of all of the previous Executive Boards. I think I speak for all of my colleagues on the Executive Board by saying that there is a high level of excitement about the potential of the Society at the dawn of the new millennium.

## From the Secretary/Treasurer

Joan Bechtold

As I begin my last column as ASB's Secretary/Treasurer, I want to thank the membership for the responsibility and trust I have been charged with, and for the enjoyment of working with this society. The American Society of Biomechanics is truly an interdisciplinary society. Because of the representation of the five core disciplines, I have gained many new friends, as well as an appreciation for the intricacies and applications of other speciality fields within biomechanics, and of the value of different perspectives. Members of the American Society of Biomechanics do not need the trendy "Diversity Training", we are by definition diverse, and thrive on the variety in representation, orientation, and discipline.

**ASB finances** - Philosophizing aside, I am pleased to report that the ASB finances are stable, healthy, and that our membership continues to rise. While our financial balance statement is healthy, our programmatic needs continue to rise. As you have seen over the past few years, ASB's commitment to our members, and in particular, to our students, has escalated dramatically. Phil Martin instituted the Grant-in-Aid program to supplement graduate student projects. ASB has, with the assistance of the Whitaker Foundation, subsidized the cost of student attendance at recent ASB meetings. This year, the membership fee was waived for new student members who joined after the annual meeting. Following on the momentum of the generous gift of Al Schultz, ASB has earmarked \$2000 annually for travel awards to assist student members to travel to the annual meeting. Awards have been instituted, and award levels have been raised. Regional student meetings have been planned, and an inaugural meeting is anticipated for 1998.

#### Current monetary resources (2/98)

Cash*	\$ 48,652.56
Stock Market certif.	\$ 24,728.48
Mutual funds (IDS)	\$ 38,225.14
TOTAL**	\$111,606.18

\* \$25,000 has been authorized to IDS for reinvestment in mutual funds for higher return.

\*\* Member dues average approximately \$20,000/yr.

#### Annual expenses (1996/1997)

Awards, Grants, Management	\$ 30,000.
(partially includes following programmatic increases)	

#### Programmatic increases since 1997

Grant-in-Aid Program	\$ 7,500.
Student Travel awards	\$ 2,000.
Publications committee/Home Page	\$ 2,500.
Administrative Office	\$ 3,000.
ASB Award level increases	\$ 750.
Am. Inst. Med. Biol. Eng. - dues	\$ 500.
Total increase	\$16,250

Estimated expenses (1998) \$40,000.

**Initiatives to provide sustaining funding** - These generous outreach activities are only possible by a healthy, solvent, stable monetary base. Mark Grabiner and Bob Gregor have been active in soliciting endowment monies, and with Trey Crisco, we have expanded our supporting member program. The other source of funds is our dues, as Mark Grabiner's column discusses. Currently, the total dues paid by the membership covers approximately just half our annual expenses, being just shy of \$20,000. Mark discusses in more detail our need to increase member dues, for the first time in 12 years, and only for regular members.

**Journal of Biomechanics** - A note on the *Journal of Biomechanics*: By the time you read this, most of you should be caught up on the receipt of your journal subscriptions. Unfortunately for most of us, Elsevier delayed sending 1998 journals to members until the second week of April, which inconvenienced many members, and generated much correspondence between members and our office, and between our office and Elsevier. I need to give Carol Schutte enormous credit for fielding much of this correspondence, and for handling the needed transactions. She has been critical in dealing with Elsevier, and her support of ASB has been unflagging (even in the wee hours). I would like to extend my apologies for these delays. To facilitate communication in subsequent years, we are working with Gerry Smith of the Communications Committee to generate a membership e-mail list, so we can alert all members with information such as this journal delay.

**Vote for your new Officers** - With this newsletter, please find your ballot to choose your next President-elect, Secretary-Treasurer, and Program-Chair-Elect. Please do vote, and register your opinion. It only takes a few minutes (read the Biographical Sketches, make your choice, and refold the ballot - add a stamp, and you're done). Broad representation of the membership's interests and opinions is critical to maintaining the multi-disci-

plinary nature of ASB, which is so critical to its success and its future.

**Results of previous ballot** - The previous ballot requested membership ratification of an Awards Committee, to assist with administering the rapidly growing set of ASB awards. This was overwhelmingly ratified, and the By-Laws will be amended to reflect this new committee.

#### Membership statistics (as of 2/98)

Membership	
Regular	657
Student	137
<u>Emeritus</u>	<u>3</u>
TOTAL	797

Biological Sci	58
Engineering/App. Phys.	419
Economics/Hum. Fac.	63
Exercise/Sport Sci.	128
Health Science	116
No designation	22

**Thanks . . .** So, in closing, thanks again for the honor of being ASB's Secretary/Treasurer. While the job looked daunting at times, I have received incredible support from the Executive Board, and, most importantly, from Carol Schutte. It has, in all actuality, been a fun three years; thanks so much for your support. I look forward to assisting the next Secretary/Treasurer in transferring administration of the Society's finances and maintaining the membership files.

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## Program & Meeting Chair Report

Melissa Gross & Stu McGill

The North American Congress on Biomechanics (NACOB'98) will be held at the University of Waterloo, Waterloo, Ontario, Canada from August 14-18, 1998. Remember to register **before June 15** to avoid late registration fees. To get full details on registration, accommodations, and travel, visit the conference website at:

<http://www.ahs.uwaterloo.ca/nacob98>

Here are some highlights of the congress program:

### KEYNOTE LECTURES

- Forensic Biomechanics - Prof. Richard Nelson
- Cancellous Bone Biomechanics - Dr. David Fyhrie
- Neuromuscular Biomechanics - Prof. Jane MacPherson

### DEBATES

- Biomechanics vs Psycho-Social Modulators of Pain Reporting
- Approaches for Obtaining Joint Torques using Linked Segment Models

### PANELS

- Computers and Visualization: Just pretty pictures or a new way to go?
- Mechanical Stimulation for Cell Adaptation
- Consideration of Muscle Properties in Making Surgical Reconstruction Decisions
- Determining Tissue Injury Tolerance

### SYMPOSIA

- CSB Human Locomotion Symposium
- ASB Symposium - Exercise: Is it a solution to falls in older adults?

### AWARDS SESSIONS

- Borelli Award Lecture (ASB)
- CSB Career Award
- Young Investigators (ASB & CSB)
- Clinical Biomechanics Award

### TUTORIALS

- EMG Signal Decomposition - Dr. Dan Stashuk
- Ethics - Dr. Subrata Saha

A post-congress workshop "Balance & posture during standing and walking: control mechanisms" will be held in conjunction with NACOB, sponsored by the Department of Kinesiology at the University of Waterloo. See the NACOB website for more information.

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## ASB Member Recognized by Smithsonian Institute

The "Motion Analysis" project by Melissa Gross was nominated for a 1998 Computerworld Smithsonian Award. Each year, the Computerworld Smithsonian Awards Program identifies and honors men and women whose visionary use of Information Technology produces positive social, economic and educational change. These innovators, nominated by chairpersons of the nation's leading information technology companies, are accorded a permanent place in history at the Smithsonian Institution's National Museum of American History.

The project "Motion Analysis" was nominated by Mr. Scott McNealy, CEO of Sun Microsystems, Inc. for an award in the Education & Academia category. The Case Study will be housed in the Smithsonian Institution's Permanent Research Collection on Information Technology and can be accessed via the web after June 10, 1998 at: <http://innovate.si.edu>.

The "Motion Analysis" project uses digital video technology to enable undergraduate students to carry out meaningful biomechanical experiments and publish their results on the web, improving understanding of human movement. The students investigate movements associated with their own leisure or athletic activities or related to their anticipated professional futures in rehabilitation or training. The archive of student projects is found at: <http://www.umich.edu/~divkines/kinweb/courses/mvs330/>.

*Editor's note:* The ASB Newsletter would like to recognize the accomplishments of other Society members. If you or someone you know has received a special honor or award for contributions within the field of biomechanics, please contact the Editor.

### Advertising in the ASB Newsletter

The Editorial Board invites various businesses and corporations 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	\$75
1/2 page	\$150
full page	\$250
back page	\$500
separate insert	\$500 per insertion

If you are interested in placing an advertisement or have any information concerning potential advertisers, please contact Gary Heise ([gheise@bentley.univnorthco.edu](mailto:gheise@bentley.univnorthco.edu)).

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## ASB Grant-in-Aid Program Year 3:

### First Announcement Request for Letters of Intent

**DEADLINE: OCTOBER 15, 1998**

The ASB Graduate Student Grant-in-Aid Program is now in its second year of operation. The first awards from the program were made in July, 1997, and the proposal review process for the second year is currently underway.

The purpose of the Graduate Student Grant-in-Aid Program is to aid and encourage student members of ASB in pursuing biomechanics research by offering a source of research funding. Awards, which will be distributed on a competitive basis, are meant to offset the costs directly associated with conducting the research. Funds may be used for small equipment items, materials and supplies, and animal or subject costs, but cannot be used to support travel costs or salaries. The Executive Board anticipates making 3-5 awards for the third funding period that will begin July 1, 1999. Award amounts are expected to range from \$500 to \$2500 for a one-year period. Students must be members of ASB or have a membership application pending no later than October 15, 1998 to be eligible for an award. In addition, the applicant's expected graduation date should not be earlier than December, 1999.

A two-stage review process will be used. Interested students must first submit a letter of intent that is postmarked no later than October 15, 1998. Submissions by electronic mail (ASCII text) and fax will also be accepted. The letter of intent should identify: 1) the significance of and need for the research to be conducted, 2) specific aims and hypotheses to be examined, and 3) a brief overview of the methods to be employed. The letter of intent should not exceed two single-spaced pages. Page margins should not be less than 2.5 cm and font size not less than 10 point.

Those who receive a favorable review at this stage will be invited to submit a full research proposal by Monday, March 1, 1999. The funding cycle will run from July 1, 1999 to June 30, 2000.

Letters of intent should be submitted to:

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## Guest Columnist

Dr. Harcharan Singh Ranu

### BIOENGINEERING IN THE MILLENNIUM

The National Institute of Health (NIH) held an innovative, first of its kind, bioengineering symposium on February 27 - 28, 1998 entitled "Bioengineering: Building the Future of Biology and Medicine." The purpose of this meeting was to chart the future of bioengineering research into the 21st century. Harold E. Varmus, MD, Director of NIH, welcomed the delegates during the opening session. According to Dr. Varmus, "Bioengineering advances the nation's health by increasing biological knowledge through the use of engineering principles and techniques and contributes methods that have facilitated the development of novel devices and drugs."

**Keynote Speaker:** Dr. Varmus introduced keynote speaker Senator Bill Frist, MD (R - TN). Senator Frist was elected to the U.S. Senate in 1994 and became the first practicing physician elected to the Senate since 1928. He is a heart transplant surgeon, research scientist, and 'citizen legislator'. Currently, he serves on five key committees and is the Chairman of the Subcommittees on Public Health & Safety and Science, Technology & Space. Since 1985, he has been a professor at Vanderbilt University Medical Center (VUMC). While at VUMC, he founded and directed the Vanderbilt Transplant Center, an internationally renowned multi-organ transplantation hospital. To date, Dr. Frist has performed more than 200 heart and lung transplants.

Senator Frist presented an overview of bioengineering in heart surgery. He indicated that over 1.5 million Americans have heart surgery each year and that 1 million Americans die from heart problems each year. He also charted the development and use of pacemakers, electrical stimulation and sophisticated catheters in heart surgery. Dr. Frist spoke of the use of 3-D MRI in determining the functioning of the heart and the use of non-invasive procedures such as visualization for precise surgery.

In his keynote address, Senator Frist emphasized the need for research funding for bioengineering. In 1979, he was instrumental in the promotion of the National Center for Bioengineering Research Act to stimulate biological research. When approved, congress would authorize the expenditure of \$750,000 for the general operation of the center and an additional \$20 million through the fiscal year 2007. The \$20 million may be used at the discretion of the NIH Director for bioengineering activities carried out by the National Research Institute or other agencies of NIH. Dr. Frist reported that funding for NIH has increased from \$6.7 billion in 1988 to \$13.7 billion in 1998. President Bill Clinton reported this increase in his State of the Union address. Due to Senator Frist's keynote address and his enthusiastic support for bioengineering, it is anticipated that research and training in bioengineering in the United States will increase substantially in the next few years.



**Bioengineering Consortium:** Dr. Wendy Baldwin, NIH Deputy Director for Extramural Research, provided information about the formation of the Bioengineering Consortium (BECON) at NIH. The consortium is composed of intramural and extramural senior level representatives from all NIH Institutes, Centers, and Divisions (ICD). The composition of this group enables BECON to stimulate and facilitate cooperation, collaboration and initiation of new programs across all of NIH and provides a direct link between bioengineering research programs at each ICD. BECON also develops liaisons with other Federal agencies and outside organizations.

**Plenary Sessions:** As part of the symposium, a series of presentations were given on the following topics:

- (a) Imaging & Measurements: From the Molecule to Function
- (b) Materials for Understanding & Controlling Biological Processes
- (c) Functional Genomics: From the Molecule to Function
- (d) Informatics: Now and Beyond
- (e) Delivery of Molecular and Cellular Therapies
- (f) Next Generation Devices and Methodologies

**Panel Discussions:** To forge the future of bioengineering for the next 5 - 10 years and recommend to NIH a course of action that should be taken to invest in the future of the nation's health, panel discussions were held on the following topics:

- (a) Functional Genomics: From the Genome to the Physiome
- (b) Imaging at the Molecular and Cellular levels
- (c) Imaging at the Tissue and Organ Levels
- (d) Functional Biomaterials
- (e) Instruments and Devices
- (f) Bioengineering in Clinical Medicine
- (g) Education and Training
- (h) Nanobiotechnology
- (j) New Approaches to Therapeutics
- (k) Combinatorial Approaches in Biology
- (l) Mathematical Modeling
- (m) Medical Informatics
- (n) Rehabilitation and Assistive Technique
- (o) Biomechanical Solutions
- (p) Bioelectrical/Biomagnetic Phenomena: Ion Channels to Organ Function

**Summary:** This symposium identified the major challenges in biomedical research that will benefit from bioengineering applications. Attention was focused on the important role that bioengineers will play in future advances in biomedical research. There was considerable discussion about how to integrate bioengineering with biological research in meeting the challenges of the twenty-first century. Symposium presenters showcased the accomplishments of NIH-funded bioengineering researchers and increased the visibility of bioengineering to NIH leaders, staff and members of the intramural and extramural research community. Recommendations were also made for future NIH-funded research projects. Attention was also placed on how basic bioengineering research can lead to commercialization of new health care technology and therefore maintain the nation's leadership in this important area. New products, from biotechnology and novel

devices for diagnosis and treatment, are marketed through interactions between universities, medical centers, small start-up firms, and larger, more established companies. In the United States the gross revenue of the bioengineering private sector industry involved in the manufacture of health care products already exceeds \$40 billion.

*Dr. Ranu is a Consultant for the American Orthopaedic Biomechanics Research Institute and a Visiting Research Scientist at the Rizzoli Orthopaedics Institute, Italy. He has been a Professor & Director of Doctoral Program at Life University, in Marietta, GA and previously, Professor & Chair of the Dept. of Biomechanics at New York College of Osteopathic Medicine. Dr. Ranu received his Doctoral degree from the University of Westminster & the Middlesex Hospital Medical School, London, England for his research on the "Effects of Ionizing Radiation on the Mechanical Properties of Skin".*

**Editor's Note:** Due to space limitations, the full text of Dr. Ranu's conference report could not be presented here. The complete text, including a summary of each of the plenary sessions and panel discussions appears in the electronic version of the Newsletter on the ASB homepage (<http://www.orst.edu/dept/HHP/ASB>).

## ***We Need Your Contribution***

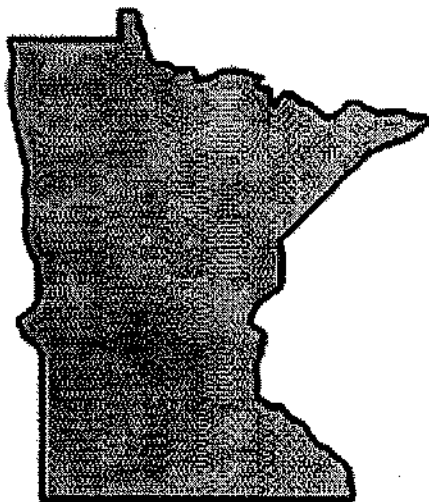
Members are encouraged to contribute to the newsletter. A note, a letter to the editor, a lead on an interesting story, information about a scientific meeting, in fact anything of interest to the ASB membership would be most welcome. Send information scrawled in long-hand, via e-mail, or on computer diskette for PC or Macintosh. If you have any other ideas, please get in touch. The next newsletter will be published in December 1998. **Deadline for submission of materials is 15 October 1998!**

## **ANNUAL MEETING HOSTS NEEDED**

### **Future ASB Annual Meeting Sites**

1998	Univ. of Waterloo (NACOB)
1999	Univ. of Pittsburgh
2000	Chicago, IL (with AIMBE)
2001	???

What are your plans for the new millenium? How about inviting the ASB to hold their annual meeting at your university in the year 2001 or beyond? Proposals or inquiries should be sent to Bruce Martin, ASB President-Elect. (See page 4 for contact information.)



## Between the Lakes

Joseph Hale

This issue of the ASB Newsletter incorporates several changes and new features. Perhaps the most obvious change is the increase in length, from 16 pages to 20 pages, that was necessary to accommodate the added content. In addition to the return of the Guest Columnist feature, a Funding Opportunities column has been added. This column was created in response to suggestions from the membership (we really do listen!), and will be a regular feature, with timely information on funding sources and procurement strategies.

Along with these changes, I would like to welcome three new members to the Newsletter Editorial Board. Kathy Browder has taken over the Job Opportunities column, Gary Heise is coordinating and soliciting advertising, and Peter Vint has accepted responsibility for the new Funding Opportunities column. Their efforts certainly make my job a lot easier. Thanks!

\*\*\*\*\*

### Good Times, Free Money, and Hairy Palms

#### VIRUS - WARNING

*There is a computer virus that is being sent across the Internet. If you receive an email message with the subject line "Good Times", DO NOT read the message, DELETE it immediately. Some miscreant is sending email under the title "Good Times" nationwide, if you get anything like this, DON'T DOWNLOAD THE FILE! It has a virus that rewrites your hard drive, obliterating anything on it. Please be careful and forward this mail to anyone you care about.*

At one time or another, most of us have opened our inbox to find an unsolicited, ominous-sounding electronic mail message warning of the impending doom of our computer system if we read or download mail with a subject line such as Good Times, Free Money, or Hairy Palms. Typically, these messages have been forwarded to you and to everyone else in the known universe by someone who, despite having the best of intentions, did not realize that they were actually perpetuating a hoax. Yes, it is only a hoax.

Although not as destructive as a virus, hoaxes are easier to create and spread faster, occasionally evolving or mutating into an altered form in the process. The particular hoax cited above, the 'Good Times Virus', was created by a couple of pranksters on America Online (AOL) in 1994. Needless to say, the warning is convincing enough to have successfully propagated itself over the years. Similar to hoaxes, chain letters also tend to propagate by playing on people's fears or emotions and have been aptly described as "the email equivalent of a stampede." The gullibility of the recipient aside, there is a natural inclination to heed these warnings and avoid the potential consequences, however unlikely. Clicking the forward button simply requires less effort than engaging the thought process.

Such warnings of software doom and destruction would be much less concerning if not for the threat of legitimate computer viruses. Each year, thousands of new computer viruses are discovered. These software programs are written intentionally to alter the normal operation of your computer without your permission and/or knowledge. Computer viruses infect executable files and documents created by applications with macro capabilities. They do not infect computer hardware. Viruses spread by attaching copies of themselves to other applications or system files on disks that are accessed. A virus remains inactive until the infected application is executed. (It is virtually impossible to contract a virus simply by reading an email message.) When activated, viruses behave in different ways and may damage the data on your computer by corrupting programs, deleting files, or erasing your entire hard disk; may cause erratic system behavior; or may simply display harmless, albeit annoying, messages.

Trojan horses and worms are differentiated from viruses because they do not replicate and spread in the same manner. Like the Trojan horse in the epic poem, the Aeneid, the former are programs that appear to serve some useful purpose or provide entertainment, but instead covertly damage files or plant a virus. Worms are programs that replicate without infecting other programs. By creating numerous copies of themselves all running simultaneously, they effectively slow down computer operation.

No one who uses computers is immune to such attacks and the threat of a legitimate virus is enough to send even more experienced users scrambling. This fact became evident as a result of a recent round of email correspondence between members of the ASB Executive Board which included a Microsoft Word attachment that carried the macro virus. There are, however, a number of precautions that you can take to protect against the onslaught of viruses, trojan horses, and worms:

- (1) Use commercial anti-virus software packages, to scan all disks for viruses before you use them.
- (2) Update virus detection software regularly to protect against new viruses.
- (3) Write protect disks and other media when practical.
- (4) Three words: back-up, back-up, back-up. If files are corrupted or erased, recovering will be much less painful if you have a 'clean' copy to reinstall.



So, how do you know if you are merely the recipient of a hoax or the actual victim of a computer virus? J. Wells' manuscript "How to Spot A Virus Hoax" [[www.av.ibm.com/InsideTheLab/Bookshelf/WhitePapers/](http://www.av.ibm.com/InsideTheLab/Bookshelf/WhitePapers/)] outlines some common characteristics that may be useful in identifying hoaxes. These characteristics include the following:

- \* warns of a virus (or occasionally a Trojan horse) spreading on the Internet.
- \* cautions against reading or downloading the supposed virus, and preaches salvation by deletion.
- \* describes the virus as having horrific destructive powers and often the ability to send itself by e-mail.
- \* includes lots of exclamation marks and words in all capital letters.
- \* repeatedly urges you to alert everyone you know.
- \* attempts to establish credibility by citing some authoritative source as issuing the warning. The warning is usually from an individual, occasionally from a company, but never from the cited source.
- \* uses specious technical jargon in describing the virus.

If you are still not sure, check out the Dept of Energy Computer Incident Advisory Capability (<http://ciac.llnl.gov/ciac/>) or the Symantec Anti Virus Research Center (<http://www.symantec.com/avcenter/index.html>). Both sites maintain a database that lists all of the currently known viruses and hoaxes.

## Past-President's Report

Bob Gregor

The ballot for the '98-'99 field of candidates is enclosed in this Newsletter. The list is impressive. This year three offices will be vacated requiring your votes for Secretary/Treasurer (an office that rotates every three years), and President-Elect and Program Chair-Elect which are elected annually. The Society and its membership are indebted to Joan Bechtold who has very capably served as our Secretary/Treasurer since 1995. Thanks Joanie for everything.

Also included in this Newsletter is our list of award winners and finalists in five of our seven award categories. Dr. Malcolm Pope is our Borelli Award Winner adding his distinguished name to our already impressive list of winners. The Borelli Award is the highest award given by the ASB and Dr. Pope is to be congratulated on his impressive record of research, teaching and service.

This year is the first time the ASB will award the Microstrain Award as a result of a gracious gift from Microstrain, Inc., Burlington, VT. Tammy Haut from UC Davis is the first recipient

of this award. Congratulations Tammy. The winners of the two Young Investigator Awards and the finalists in the Clinical Biomechanics category will also present their work at NACOB on Saturday, August 15th. Please watch for the specific times in the program.

The Student Travel Award is still accepting applications and Todd Royer will explain this procedure in his section of this Newsletter. One final note relates to the ASB Travel Award which received no applications this year. If anyone has any suggestions or comments please contact Bob Gregor at Georgia Tech. The Board will discuss this issue at its meeting in Waterloo this summer. I would like to thank the committee members who served on the Nominations Committee and on the Awards Committee this past year. Each will be recognized at Waterloo this August. Thanks everyone for your time and energy.

## 1998 ASB Award Winners

### BORELLI AWARD

MALCOLM POPE - University of Iowa  
"Aetiology of Low Back Pain Due to  
Whole Body Vibration (WBV)"

### YOUNG SCIENTIST PRE-DOCTORAL AWARD

ALLISON ARNOLD - Northwestern University  
"Do the Hamstrings and Adductors Cause Excessive Internal  
Rotation of the Hip in Persons with Cerebral Palsy?"

### YOUNG SCIENTIST POST-DOCTORAL AWARD

CHRISTOPHER JACOBS - Penn State University  
"The Impact of Boundary Conditions and Mesh Size  
on the Accuracy of Cancellous Bone Tissue  
Modulus Determination Using Large  
Scale Finite Element Modeling"

### CLINICAL BIOMECHANICS AWARD

GENE JAMESON - American Sports Medicine Institute  
"Electromyographic Responses to Programmable  
Resistance (Protonics™) Knee Braces"

ANDREW KARDUNA - Allegheny University  
"Three-Dimensional Measurements of Scapular Kinematics:  
Reliability and Validity of a Novel Technique"

CHRISTOPHER SCIFERT - University of Iowa  
"Finite Element Analysis of a Novel Design Approach  
to Resisting Total Hip Dislocation"

### MICROSTRAIN AWARD

TAMMY HAUT - University of California, Davis  
"A High Accuracy Three-Dimensional Coordination  
Digitizing System for Reconstructing the Geometry  
of Diarthrodial Joints"

# Job Opportunities in Biomechanics

## FACULTY POSITIONS

**Computational Mechanics** - Assistant Professor tenure-track faculty position. Duties include undergraduate and graduate teaching, initiating funded research, supervising graduate student research, and becoming active in the computational and experimental research program in injury/impact biomechanics. PhD is required. Send resume and the names and telephone numbers of 4 references to: Professor John G. Thacker; Search Committee Chair; Department of Mechanical, Aerospace, and Nuclear Engineering; Thornton Hall; University of Virginia; Charlottesville, VA 22903-2442; Email: jgt@uva.pcmail.virginia.edu

**Sport Fitness Management Chair** - Requirements: PhD in Exercise Physiology, Kinesiology, or Biomechanics; 3-5 years of scholarly productivity in sport or related area; experience in human performance evaluation; and developed computer skills. Send resume, 3 letters of recommendation, and transcripts to: United States Sports Academy; Attn: Dept. of Administration; One Academy Drive; Daphne, AL 36526; FAX: 334-621-2527.

**Biomedical Engineering** - One position in Dept. of Electrical and Computer Engineering, and one position in Dept. of Mechanical Engineering. Both positions will be associated with newly established Cardiovascular Engineering Center which currently focuses on diagnostic, interventional, and replacement systems and devices associated with the CV system. Requirements: Doctoral degree; preference given to individuals who have experience in CV system research. Send CV and 3 professional references to: Dr. Richard T. Schoephoerster; College of Engineering; Florida International University; 10555 West Flagler Street; EAS 3405; Miami, FL 33174; Email: schoepho@fiu.edu.

**Director, Healthcare Technologies Management Program** - Responsible for the overall supervision and direction of the master of science program in Healthcare Technologies Management. Requirements: Ph.D. in biomedical engineering or closely-related discipline, with substantial teaching and administrative experience. Contact: William R. Hendee, Ph.D.; Professor of Biomedical Engineering; Marquette University; P.O. Box 1881; Milwaukee, Wisconsin 53201-1881; TEL: 414-456-4402; FAX: 414-456-6554; Email: whendee@mcw.edu. Deadline: 11-01-98. Position available January, 1999.

**Biomedical Engineering** - The University of Wisconsin invites applications for a tenured or tenure-track position. A particular emphasis is minimally invasive medicine. Send resume and names of three references to Prof. Robert Radwin, Chair, BME, UW-Madison, 1513 University Avenue, Madison, WI 53706-1572. Reference PVL 29327. Deadline 10-01-98.

**Bioengineering** - Asst, Assoc, or Full Professor. Individual will teach undergraduate and graduate courses, direct graduate student research, and assist with the growth and development of the Department. Requirements: PhD in bioengineering, biomedical engineering, chemical engineering, mechanical engineering, life sciences, or the doctor of medicine (MD). Submit a CV, reprints of selected publications, a narrative describing research plans and goals, and 4 letters of recommendation to: Professor Ronald L. Fournier, Chairman; Department of Bioengineering; The University of Toledo; Toledo, Ohio 43606-3390; TEL: 419-530-8030; FAX: 419-530-8076; Email: rfourni@uoft02.utoledo.edu. Deadline: 06-30-98

**Dean, School of Technology** - Requirements: Doctorate in technology, engineering, or equivalent discipline; sufficient accomplishments to qualify for appointment as full professor with tenure; registration as professional engineer desirable. For more information, contact: Dr. Fennoyee Thomas; Chair, Dean of School of Technology Search Committee; Department of Fine Arts; Texas Southern University; Houston, TX 77004; TEL: 713-313-7337.

**Biomaterials** - Tenure-track position with expertise in the response of tissues to engineering materials. Individual will utilize Advanced Light Source at the Lawrence Berkeley National Laboratory. Doctoral degree in appropriate field is required. Position available Spring, 1999. Send resume, statement of interest, copies of publications, names and addresses of references to: Professor Thomas M. Devine, Chair; Dept. of Materials Science and Mineral Engineering; 577 Evans Hall #1760; University of California; Berkeley, CA 94720-1760; TEL: 510-642-3801; Email: devine@socrates.berkeley.edu.

## POST-DOC/FELLOWSHIP POSITIONS

**Postdoctoral Research Fellow** - Individual would develop minimally invasive spectroscopic techniques for the detection of premalignant lesions in the gastrointestinal tract. Requirements: PhD in chemistry, biomedical engineering or related field; strong background in spectroscopy and an understanding of tissue optics and experimental research. Contact: Norman S. Nishioka, M.D.; Wellman Laboratories Of Photomedicine; Massachusetts General Hospital; BAR703; 55 Fruit Street; Boston, MA 02114; TEL: 617-726-8409; FAX: 617-726-4103; Email: norm@wlp.mgh.harvard.edu; Deadline: 12-31-98.

**Orthopaedic Biomechanics** - Several post-doctoral and research technician positions at Duke University Medical Center. Positions in Cell Mechanics, Cartilage Mechanical Transduction, and MRI Microscopy of Cartilage. Contact: Farshid Guilak; University Medical Center; 375 MSRB, Box 3093; Durham NC 27710; 919-684-2521; FAX: 919-681-8490.

## OTHER POSITIONS

**Sr. Staff Engineer** - Individual will provide expertise in soft tissue mechanics (to include biaxial, bending, tensile and dynamic mechanical analysis) and some support of product development. Requirements: MS (Ph.D. preferred) in Biomechanics, or related field, with 1-5 years of post graduate academic or industrial work in biomechanical characterization and modeling of soft tissue/bioprosthesis tissue. Send resume with salary history to: Baxter Healthcare Corporation; Attn: HR/JB; 17221 Redhill Ave.; Irvine, CA 92614; FAX: 714-250-3487. Apply online at [www.baxter.com](http://www.baxter.com).

**Research Engineer** - To perform experimental design, motion analysis, mechanical testing, and computational and statistical analyses. A BS or MS in mechanical or bioengineering is required. Contact Louis F. Draganich, PhD, The University of Chicago, Section of Orthopaedics and Rehabilitation Medicine, Department of Surgery, 5841 S Maryland Ave/MC3079, Chicago, IL 60637, Tel: 773-702-6839, Fax: 773-702-0076, E-mail: [ldragani@surgery.bs.uchicago.edu](mailto:ldragani@surgery.bs.uchicago.edu)

**Biomedical Engineer-Scientist** - Immediate opening with Wyle Laboratories at NASA Johnson Space Center. Individual will be member of research team working on medical problems of spaceflight. Requirements: M.S. in Biomedical Engineering with strong background in vestibular physiology; experience with biomedical instrumentation and measurements, real-time data acquisition, and signal processing; advanced computer skills. Contact: Terri Coker; Wyle Laboratories; 1290 Hercules Drive, Suite 120; Houston, TX 77058; Email: [103354.2343@compuserve.com](mailto:103354.2343@compuserve.com).

**Drafter/Designer** - Immediate opening with ORATEC Interventions, Inc., a medical device manufacturing company specializing in minimally invasive arthroscopic orthopedic treatment modalities. Individual will assist R&D with development, design, and maintenance of mechanical designs. Requirements: Knowledge of solidworks + 4 yrs CAD exp., computer skills. Send cover letter and resume to: ORATEC Interventions, Inc.; 3700 Haven Court; Menlo Park, CA 94025; TEL: 650-369-9904.

**Product Development Engineer** - Immediate opening with ETEX Corporation to serve as the lead engineer in product development. Principal responsibilities will include spearheading package design and development. Requirements: BS, MS, or equivalent in Mechanical or Manufacturing Engineering; 3-5 years related experience in product development in the medical device or pharmaceutical industry; orthopedic experience preferred. Mail/fax/email resumes to: ETEX Corporation, Attn: Human Resources; 38 Sidney Street; Cambridge, MA 02139; FAX: 617-577-7270. Email: [HRRegina@aol.com](mailto:HRRegina@aol.com).

**Senior Product Development Engineer** - Immediate opening in the Hip Development department with Smith & Nephew, Inc. Responsible for the design of products, including large scale and/or complex systems. Requirements: BS degree in Mechanical Engineering, Biomedical Engineering, or related field; MS pre-

ferred; minimum 3 years experience in Orthopaedic product development. Send resume including salary history to: Human Resources-ORTHO/pde; 1450 Brooks Rd.; Memphis, TN 38116; FAX: 901-348-6004.

**Design Engineer** - Immediate opening with Encore Medical Corporation, a company that designs, manufactures, markets and orthopedic products and supplies. Position is responsible for the design and development of orthopedic implant devices and surgical instruments. Requirements: BS in mechanical engineering or equivalent, and 5 years experience in mechanical design. Email, mail or fax resume to: Encore Orthopedics, Inc.; Attn: Human Resources Department; 9800 Metric Blvd.; Austin, Texas 78758; TEL: 512-832-9500; FAX: 512-834-6300.

**Continuing Education Course Acquisitions Editor** - Individual will guide the development of continuing education in Kinesiology/Exercise Science. Requirements: Ph.D. in kinesiology, exercise science, physical education, or related field; knowledge of computer-assisted instruction. Send cover letter and resume to: Human Resources; Human Kinetics; P.O. Box 5076; Champaign, IL 61825; FAX: 217-351-2674; Email: [paigeh@hkusa.com](mailto:paigeh@hkusa.com).

**R&D Engineer** - Provide project management and technical support for new products including but not limited to design, testing, geometric dimensioning and tolerancing, design for manufacturing, QSR's design control, hazard analysis, FMEA, CAD design, and hands-on development. Qualifications: 1-3 years experience in medical device and/or electronics packaging industry. BS in Engineering (ME, EE, Physics, Materials, or equivalent). Send resume to: Human Resources; ArthroCare Corporation; 595 North Pastoria Avenue; Sunnyvale, CA 94086; FAX: 408-736-0226; Email: [jobs@arthrocare.com](mailto:jobs@arthrocare.com).

**Research Engineer** - Position involves carrying out bioengineering-based experiments in vascular biomechanics and vascular surgery. Requirements: BS in biomedical engineering or related field, with ability to troubleshoot laboratory equipment, program and debug computer systems, perform data acquisition and analyses, create and maintain a variety of databases, etc. For more information, contact: David A. Vorp, Ph.D.; Division of Vascular Surgery; University of Pittsburgh; Suite A-1011 P.U.H.; Pittsburgh, PA 15213; Email: [VORP@PITTSURG.NB.UPMC.EDU](mailto:VORP@PITTSURG.NB.UPMC.EDU).

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**NOTE:** Applicants are strongly encouraged to contact the listing individual/institution directly to determine the current status of a position and to obtain additional information.

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Additional opportunities can be found on the ISB home page (<http://www.lri.ccf.org/isb/jobs/jobs.html>) and on the Biomechanics World Wide home page (<http://www.per.ualberta.ca/biomechanics>) under the Career Opportunities category.

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# Calendar of Events

**20-21 June 1998** Annual Meeting of the Canadian Orthopaedic Research Society, Ottawa, Ontario, CANADA. Max Aebi, M.D., Programme Chairperson, Canadian Orthopaedic Research Society, 1440 O. SteCatherine W., Suite 421, Montreal, Quebec H3G 1R8. Tel: 514/874-9003; Fax: 514/874-0464.

**21-26 June 1998** 13th U.S. National Congress of Theoretical and Applied Mechanics, Univ. of Florida, Gainesville, FL. Prof. M.A. Eisenberg, AeMES Dept. Univ. of Florida, PO Box 116250, Gainesville, FL 32611-6250. Tel: 719/333-4034; Fax: 352/392-7303; email: meise@eng.ufl.edu.

**27-30 June 1998** Congress of the International Society of Electrophysiology and Kinesiology, Montreal, CANADA. ISEK Secretariat, Conference Office, McGill University, 550 Sherbrooke St. West, West Tower, Suite 490, Montreal, QC, Canada H3A 1B9. Tel: 514/398-3770; Fax: 514/398-4854; email: isek@UMS1.Lan.McGill.CA; <http://www.mcgill.ca/mco/isek>

**28 June-1 July 1998** 1998 Meeting of the International Research Society of Spinal Deformities; Burlington, Vermont. Ian A. Stokes, Ph.D., University of Vermont, Department of Orthopaedics and Rehabilitation, Burlington, VT 05405-0084. Tel: 802/656-2250; Fax: 802/656-4247; email: irssd@med.uvm.edu; <http://salus.med.uvm.edu/~irssd/1998.htm>

**2-5 July 1998** 5th International Symposium on the 3-D Analysis of Human Movement, Chattanooga, TN. Michael W. Whittle, MD, PhD, Cline Chair of Rehabilitation Technology, The University of Tennessee at Chattanooga, 615 McCallie Avenue, Chattanooga, TN 37403. Tel: 423/7554747; Fax: 423/785-2215; email: Michael-Whittle@utc.edu; <http://www.utc.edu/Human-Movement/>.

**8-11 July 1998** 11th Conference of the European Society of Biomechanics, Toulouse, FRANCE. ESB'98, BP 3103, 31026 TOULOUSE CEDEX, FRANCE, email: ESB98.Toulouse@purpan.inserm.fr; <http://esb.purpan.inserm.fr>.

**13-17 July 1998** 2nd International Conference on The Engineering of Sport, The University of Sheffield. Miss Amanda Staley, Conference Secretariat, 2nd International Conference on the Engineering of Sport, Department of Mechanical Engineering, The University of Sheffield, Mappin Street, Sheffield S1 3JD, UK. Tel: (+44 114) 222-7801 Fax: (+44 114) 275-3671; email: a.staley@sheffield.ac.uk.

**21-25 July 1998** XVI Symposium of the International Society of Biomechanics in Sports; University of Konstanz (Germany). ISBS'98 Secretariat, Department of Sports Science, Lehrstuhl Riehle, P.O.Box 5560 D30, 78434 Konstanz / Germany. Tel: +49-7531-883565; Fax: +49-7531884221; email: isbs98@uni-konstanz.de. <http://www.isbs98.unikonstanz.de>.

**2-8 Aug 1998** The Third World Congress of Biomechanics; Hokkaido University, Sapporo, Japan; Kozaburo Hayashi, Osaka University; Biomechanics Laboratory, Department of Mechanical Engineering, Faculty of Engineering Science, Osaka University, Toyonaka, Osaka 560, Japan. Tel: +81-6-850-6170; Fax: +81-6-850-6171; email: office@wcb98.me.es.osaka-u.ac.jp; <http://wcb98.me.es.osaka-u.ac.jp/>

**8-12 Aug 1998** VI EMED Scientific Meeting, Brisbane, Australia. Caroline Jordan, Medical Engineering & Physics, King's College Hospital, East Dulwich Grove, London SE22 8PT, U.K. Tel/Fax: +44 181 693 2345; email: noveluk@nove.de.or; <http://www.novel.de>.

**14-18 Aug 1998** 3rd North American Congress on Biomechanics; University of Waterloo, Ontario, CANADA. Beverly Brookes, Congress Coordinator, Department of Kinesiology, Faculty of Applied Health Sciences, University of Waterloo, Waterloo, Ontario, Canada, N2L 3G1. Tel: 519/888-4567 x6884; Fax: 519/885-2694; email: nacob@healthy.uwaterloo.ca; <http://www.ahs.uwaterloo.ca/nacob98>.

**18-19 Aug 1998** Workshop on Balance & Posture During Standing & Walking: Control Mechanisms, Waterloo, Ontario, CANADA. Betty Bax, Course Co-ordinator, Applied Health Sciences, University of Waterloo, Waterloo, Ontario, Canada. Tel: 519/888-4567 ext.2610; email: bax@healthy.uwaterloo.ca

**9 Sept 1998** 3rd Triennial International Hand and Wrist Biomechanics Symposium, Minneapolis, MN. Ms. Linda Oelke, CMP, Section of Continuing Medical Education, Mayo Foundation, Rochester, MN 55905. Tel: 800/323-2688; Fax: 507/284-0532.

**5-8 Oct 1998** III International Congress on Motor Rehabilitation, Monte Real Resort, Aguas de Lindoia, Sao Paulo, Brazil. Vertical Turismo, R. Maria Monteiro, 1104, Campinas SP Brazil, 13025-151. Fax: 55-19-2547602; email: vectur@bestway.com.br; [www.unicamp.br/ib/congresso/motor-reabilit98](http://www.unicamp.br/ib/congresso/motor-reabilit98). Abstracts due July 1, 1998.

**10-13 Oct 1998** First International Conference on Medical Image Computing and Computer Assisted Interventions, Boston MA. MICCAI 1998, c/o Eric Grimson, MIT Artificial Intelligence Laboratory, 545 Technology Square, Cambridge MA 02139. <http://www.ai.mit.edu/miccai98.html>.

**10-13 Oct 1998** Annual meeting of the Biomedical Engineering Society, Cleveland, Ohio. Cleveland Clinic Educational Foundation, P. O. Box 931653, Cleveland, OH 44193-1082. Tel: 800/762-8173; Fax: 216/445-9406 <http://www.ccf.org/ri/bme/bmes/>

**8-10 Nov 1998** 75th Annual Conference of the American Congress of Rehabilitation Medicine, Seattle, Washington. American Congress of Rehabilitation Medicine, 4700 W. Lake Ave., Glenview, IL 60025-1485. Tel: 847/375-4725; Fax: 847/375-4777; email: [info@acrm.org](mailto:info@acrm.org); <http://www.acrm.org/>.

**10-12 Nov 1998** International Conference on Weightlifting and Strength Training, Lahti, Finland. Conference Secretariat, Ms. Pirjo-Leena Pitkanen, Conference Manager, Confennia Ltd, P.O. Box 35, FIN-40351 Jyväskylä, Finland. Tel. +358 14 603 662; Fax +358 14 603 727; email: [pitkanen@cone.jyu.fi](mailto:pitkanen@cone.jyu.fi); <http://www.jyu.fi/wlconference>.

**19-21 Nov 1998** 3rd Interdisciplinary World Congress on Low Back and Pelvic Pain, Vienna, Austria. University of California Medical School, Office of Continuing Medical Education, 9500 Gilman Drive, La Jolla, CA 92093 - 0617. Tel: 619/534-3940; Fax: 619/534-7672.

**2-4 Apr 1999** 18th Southern Biomedical Engineering Conference & 2nd International Conference on Ethical Issues in Biomedical Engineering, Clemson University, Clemson, SC. Subrata Saha, Ph.D., Director, Bioengineering Alliance of South Carolina, 313 Rhodes Research Center, Clemson University, Clemson, SC 29634-0906. Tel: 864/656-7603; Fax: 864/656-4466; email: [amarand@clemson.edu](mailto:amarand@clemson.edu). Abstracts due November 2, 1998.

**2-5 June 1999** Annual Meeting of the American College of Sports Medicine, Seattle, WA. Michael Feltner, Dept. of Sports Medicine & Physical Ed., Pepperdine University, Malibu, CA 90263. Tel: 310/456-4312; Fax: 310/317-7270; email: [mfeltner@pepperdine.edu](mailto:mfeltner@pepperdine.edu); <http://www.acsm.org/sportsmed>.

**8-13 Aug 1999** XVIIth Congress of the International Society of Biomechanics; Calgary, Canada. Secretary General, 1999 ISB Congress, Faculty of Kinesiology, University of Calgary, 2500 University Drive N.W., Calgary, Alberta, T2N 1N4 CANADA. email: [isb99@kin.ucalgary.ca](mailto:isb99@kin.ucalgary.ca).

Paid Advertisement

## Biomechanics and Biomaterials Research Faculty Position Available

The Pennsylvania College of Podiatric Medicine has recently merged with Temple University in Philadelphia to form the Temple University School of Podiatric Medicine (TUSPM). The School of Podiatric Medicine will become Temple University's 15th college and the fifth within the Health Sciences Center, along with the Schools of Medicine, Dentistry, Pharmacy, and the College of Allied Health Professions. The Health Sciences campus is also home to Temple University Hospital and the new Temple University Children's Medical Center.

The Biomechanics and Biomaterials Laboratories at the Temple University School of Podiatric Medicine invite applications for a senior faculty position in the area of Biomedical Engineering. Individuals with significant experience in biomechanics, biomaterials, or tissue engineering are encouraged to apply. Applicants must possess a Ph.D. in engineering and/or related basic sciences. The ideal candidate has significantly influenced the field of biomedical research as documented by peer-reviewed publications and a significant research funding history. This senior faculty member will direct a Research Center comprised of existing gait and posture, biomaterials, and tissue engineering laboratories and will assume teaching and research responsibilities at TUSPM. In addition, this individual will be expected to mentor the existing laboratory directors, faculty members, medical and graduate students, post-doctoral fellows, and residents.

Temple University is an Equal Opportunity/Affirmative Action Employer and encourages applications from minorities and women. Salary is competitive and based on experience with an excellent fringe benefits package.

A letter of interest briefly describing previous and future career plans, a curriculum vitae, and names, addresses, and telephone numbers of at least three references should be sent to the Pennsylvania College of Podiatric Medicine, Eighth and Race St., Philadelphia, PA 19107. Application materials should be sent to either:

Howard J. Hillstrom, Ph.D.  
tel: (215) 625-5366  
fax: (215) 629-1622  
[hhillstrom@pcpm.edu](mailto:hhillstrom@pcpm.edu)

OR

Suzanne H. Maxian, Ph.D.  
tel: (215) 625-5238  
fax: (215) 629-4904  
[smaxian@pcpm.edu](mailto:smaxian@pcpm.edu)

## Education Committee Chair

Suzanne Smith

**1998 NACOB TUTORIALS:** Two tutorials are being presented at this year's 1998 NACOB meeting being held at the University of Waterloo. The tutorials will be presented during the Pre-Congress Course sessions scheduled for Friday afternoon on 14 August. The ASB and CSB each selected one tutorial for the 1998 meeting. As in the past, student members will be able to attend the tutorials at no additional cost. A nominal fee will be charged to other attendees. The following are synopses of the tutorials:

**ASB TUTORIAL: Ethics in Biomechanics**

**PRESENTER:** Subrata Saha, PhD, Director, Bioengineering Alliance of South Carolina, Department of Bioengineering, Clemson University, Clemson, SC

Research in biomechanics has significantly improved our understanding of the normal physiological functions and how structural changes in normal and pathological tissues affect their functions. It has also been instrumental in the development of new implants and prosthesis to restore these functions. However, along with the development of new medical technology, new moral and ethical issues have emerged. These include allocation of scarce resources, clinical trials of new devices and implants, conflict of interest, and human and animal experimentation. Bioengineers need adequate training and background in the principles of bioethics as they face these ethical issues during the course of their research and practice. The principles of bioethics, and examples of such ethical issues in biomechanics and how we can deal with them, will be discussed during this tutorial.

**CSB TUTORIAL: EMG Signal Decomposition: How it is performed and how it can be used?**

**PRESENTER:** Dan Stashuk, PhD, Department of Systems Design Engineering, University of Waterloo, Waterloo, Ontario, Canada

Some EMG signals, detected using selective indwelling electrodes, can be decomposed into their constituent motor unit action potential trains (MUAPTs). The MUAPTs that contribute to an EMG signal provide information regarding the temporal behavior and morphological layout of motor units that were active during a muscle contraction. Such information can assist in the diagnosis of various neuromuscular disorders and in the development of a better understanding of healthy, aging or pathological neuromuscular systems. The decomposition of an EMG signal and the useful analysis of the resultant information involve the application of signal processing and pattern recognition algorithms. The objectives of the workshop are to present the fundamental concepts and aspects involved in the successful decomposition of an EMG signal. These will include assumptions and methods upon which decomposition is based and related limitations of all decomposition techniques. The workshop will also attempt to present an array of specific examples as

to how EMG signal decomposition may be used for either clinical or research purposes.

Both tutorial topics were suggested in the 1997 ASB Meeting Evaluations and both promise to be of considerable interest to members of both Societies. Everyone is encouraged to attend the Pre-Congress Courses at NACOB98!

**NACOB98 MEETING EVALUATION:** The ASB Education Committee will be conducting the evaluation of the NACOB98 meeting. Hardcopies of the evaluation forms will be distributed at the meeting as part of the conference material. Attendees will also be able to submit their evaluations electronically through the NACOB and ASB websites. Electronic submission was initiated following last year's ASB Annual Meeting held at Clemson University and proved quite successful. Those who visit the NACOB98 website will notice several differences between this year's program format and recent ASB program formats. The scientific sessions are all poster presentations in contrast to the combination of podium and poster formats used at past ASB meetings. In addition to keynote lectures and panel sessions, two debates are also planned for the meeting. Several of these formats were recommended in the 1997 Meeting Evaluations and the ASB Executive Board is very interested in obtaining feedback from the attendees. For those of you planning to attend NACOB98, this will be the first of several reminders to please take a little extra time to fill out the evaluation form. The results of the evaluations are discussed at the mid-year meeting of the ASB Executive Board and are taken very seriously in planning and improving future conferences. See you at NACOB98!

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## from the *Journal of Biomechanics*

**Richard A. Brand, Editor-in-Chief**

Good news! We have now cut our average time from acceptance to publication to 4-5 months (a figure publishers consider a minimum since they do not want to run the risk of having too few papers for a given issue). For a variety of reasons (including financial), the publisher and editors work on a page budget. That is, we can publish only so many pages per year. In the past too many pages of accepted manuscripts led to longer and longer acceptance to publication times. As you all likely know, several years ago we had a backlog of 12-16 months. With an increasing number of submissions, we have worked hard by restricting length and increasing rejection rates to reduce the lag. Rik Huiskes and I are convinced we have increased the overall quality of the *Journal of Biomechanics* in this process (a process admittedly painful for authors at times). Impact factors document this point.

The effect of lag reduction for authors is we can now be a bit more liberal. We do not intend to increase length guidelines, although for select papers we can be a bit less stringent. In addition, we



anticipate acceptance rates increasing modestly. We feel this important since we in fact have had to initially reject some papers which we and reviewers deemed publishable with appropriate albeit sometimes considerable revisions and/or additional data or analysis.

Many thanks to those of you who volunteered to review for the *Journal of Biomechanics*. My office alone processes about 500 manuscripts (new or revised) per year. I send initial submissions to three referees. Subsequent revisions may be sent back to only two or one referee. This process involves perhaps 700-800 reviews per year. Despite our large list of referees, we still do not always have adequate numbers of referees for a given paper. It is easy to see why additional referees are always needed. Please let me know if you would like to review papers, and if so specific topics. We attempt never to send more than four new manuscripts per year to any single referee.

Each year, the *Journal of Biomechanics* devotes 30 pages to each of the three official societies (ASB, ISB, ESB). In these pages we publish keynote lectures or awards papers. While we consider the awards papers peer-reviewed by their nature, any other material undergoes peer review, either by the society or our editorial offices. We encourage use of these available pages, and hope members will make creative suggestions for their use.

The *Journal of Biomechanics* editorial office is moving into the electronic age. I hope within the next year or two to move almost exclusively to electronic reviews. At this point, I encourage all authors to submit manuscripts not only in hard copy but also in electronic file versions (MS Word preferred). Presuming we can read the files (e-mail or diskette, including images), we will begin sending manuscripts to referees via e-mail. I also now encourage all referees to send reviews via e-mail. We will then transmit reviews and editorial comments to authors electronically. Quite obviously, this minimizes review time, a great advantage to authors. All manuscripts and reviews should be sent to: rose-britton@uiowa.edu.

I draw attention to a new feature of the *Journal of Biomechanics*: an end-of-the-year supplementary CD-ROM. The intent is to include supplementary material not readily publishable in archival format. Such material includes appendices with more detailed descriptions of method or extensive data, color illustrations, stress plots, animation, etc. Please consider this new feature when deciding where to submit material. Obviously, such possibilities extend current reporting of archival material to contemporary forms of archival material. As of April 1, 1998, we moved our editorial offices to a new building. Our new phone number is 319-356-1076, and the new FAX number is 319-384-9419. E-mail addresses remain the same. Please note these changes in your records.

Finally, please feel free to contact me (dick-brand@uiowa.edu) if you have any comments or suggestions for the *Journal of Biomechanics*. The Journal is your official organ, and we would like to support ASB in any way we might reasonably do so. I look forward to hearing from you.

## Students' Corner

Todd Royer

I hope everyone had a productive and successful spring semester. NACOB98 is quickly approaching. Once again, the meeting program covers many disciplines of interest to both student and professional members. I want to encourage you to make every effort to attend the NACOB meeting. Registration and accommodation fees for students are very reasonable.

The new student representative will be elected at NACOB98 during a student breakfast meeting on Saturday morning, August 15, and you should consider this service opportunity. My experiences as student representative have been enlightening, ranging from email communications with student members to interactions with the Executive Board. Email me if you have questions or if you are interested in serving as the student representative.

ASB is committed to supporting its student members. Funding opportunities, which only student members are eligible to receive, include the ASB Graduate Student Grant-in-Aid Program, the ASB Microstrain Award, and the Student Travel Award. Membership dues and conference registration fees are kept to a minimum to facilitate participation. Encourage your student colleagues to apply for membership and to attend NACOB98.

All student members are eligible to apply for one of eight \$250 Student Travel Awards to partially fund travel expenses to the 1998 NACOB meeting in Waterloo, Canada. Preference will be given to students who are first author for a poster or podium presentation. To apply for an award, student members must submit: 1) a letter of purpose (approximately one page) which states the need for funding, reasons for attending the meeting, and an overview of his/her area of study; 2) a copy of the accepted abstract; 3) a copy of the abstract acceptance notification; and 4) a letter from the student's principal advisor stating a lack of other (travel) funding sources. All materials should be sent to Dr. Robert Gregor, Georgia Institute of Technology, Dept of Health/Performance Sciences, Atlanta, GA 30332-0110. Materials may also be sent to Dr. Gregor via FAX (404-894-7025) or email (robert.gregor@sac.gatech.edu). **Applications must be received by June 22, 1998.** If you have questions about the award or application process, please contact me via email (todd.royer@asu.edu).

Hope to see you in Waterloo.

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"Give a man a fish and you feed him for a day.  
Teach him to use the Internet and he won't  
bother you for weeks." -- Unknown

# Membership Committee

Trey Crisco

The ASB concluded 1997 with another record year of applications for membership. A total of 113 applications for membership were received in 1997. The distribution of applicants among the various disciplines has remained essentially the same over the years. Most of the applicants were from Engineering/Applied Physics (56%). The next highest number of applicants were in the areas of Exercise/Sport Sciences (22%) and Biological Sciences (10%). Health Sciences and Ergonomics/Human Factors constituted 8% and 4% of the applications, respectively. Student applications accounted for approximately 39% of the total. Approximately 12% of the applications for regular membership were not granted. All student applicants were granted membership.

During this past year, the ASB Executive Board and the Membership Committee have updated and clarified the requirements for Regular membership in the Society. The primary reason for updating and clarifying the criteria is to ensure that Regular members are experts in the field of biomechanics who are interested and committed to contributing to the ASB, and not just after the pretty plaque. The criteria for Regular membership in the Society are 1) expertise in the field of biomechanics and 2) contributions to the Society. In order to demonstrate expertise in the field of biomechanics, applicants are requested to provide a list of not more than ten of their most recent refereed scientific papers, abstracts, and book chapters in their area of interest. Applicants are requested to briefly list relevant employment history. This will assist the Membership Committee in assessing the applicant's potential for further contributions to the ASB. Full CV's from applicants are no longer accepted. Applicants are also asked to list the most recent annual meetings of the ASB attended. The new membership form can be viewed on the ASB Home Page. The criteria for Student membership are unchanged.

The Chairperson would like to thank the members of the Membership Committee for their time and effort: Gregory Rash, representing Exercise/Sport Sciences; Claire Farley, representing Biological Sciences; Irene McClay, representing Health Sciences; and Mark Redfern representing Ergonomics/Human Factors.

To continue the growth and vigor of the Society, the Membership Committee reminds you to encourage your colleagues and students to apply for membership.



## USNCB Report Manssour H. Moeinzadeh

The U.S. National Committee on Biomechanics met at the annual American Institute for Medical and Biological Engineering (AIMBE) meeting which was held in Washington, D.C. on March 1, 1998. Among the items discussed were:

**5th Japan/USA/Singapore/China conference on Biomechanics** - The committee reviewed the arrangements for this conference which is to be held in August, 1998. Forty-one individuals have been invited by USNCB of which 31 (14 junior & 17 senior scientists) have accepted to date. Financial support has been awarded by NSF at the level of \$10,000 and additional support is being sought from Japan.

**Interaction between USNCB and the Biomedical Engineering Society (BMES)** - The USNCB will sponsor eight sessions at the next BMES meeting to be held in Cleveland in October. USNCB would like to promote increased opportunities for student participation in these conferences. Creation of student paper competitions or other mechanisms that might provide these opportunities to both students and post-docs were reviewed. Further discussions will be held with BMES Board in an effort to increase the formality and manner in which the USNCB interacts with BMES.

**Review of NIH Bioengineering Consortium (BECON) Symposium** - The committee reviewed some of the discussions which were held during the Biomechanics Panel and noted in particular, the three areas of research needs that were identified. These included: (a) studies concerning the adaptation of tissues to stress including repair, fatigue, and failure, (b) more studies on in vivo biomechanics in an effort to better define boundary conditions for all hierarchical scales and time, (c) the need for increased studies in molecular biomechanics.

**NIH support of biomechanics research** - The committee discussed the potential for an new initiative to increase NIH support of biomechanics research. These discussions included some of recommendations from BECON which hopefully will lead to RFA's for research projects and centers of excellence, increased education of the public about the need for and benefits of biomechanical studies, and the need to integrate biomechanists with biologists, clinicians and other appropriate groups. Also discussed was the need for post-doctoral and pre-doctoral funding, and perhaps even the generation of funds to support individuals to do sabbaticals in disparate disciplines.

**New Business** - The primary new business was to discuss new initiatives and activities for USNCB in three major categories of education, scientific dissemination and resource development. A specific list of activities were identified for these categories and further discussion on this issue will be held during the next USNCB meeting.

# Communications Committee

Gerald Smith

## **ASB Electronic Resources: Promise and Problems of New Technology**

The potential of internet based resources has become somewhat clearer over the past several years as many organizations and commercial ventures have creatively expanded what is available via the web. In biomechanics, the biomch-1 email list has been an outstanding effort which for many years has linked the international community together. In other respects, biomechanists have been slower to adopt new technologies than one might expect from such a computer savvy group. In contrast, consider the scholarly resources that computer scientists have made available at The Collection of Computer Science Bibliographies (<http://liinwww.ira.uka.de/bibliography/>). This online database includes more than a thousand bibliographies with 800,000 references to abstracts from conference proceedings as well as more commonly available journal articles and technical reports. The entire database is text searchable. Many entries in the database include full abstracts and in some cases full text of papers.

In biomechanics, we lag far behind this potential. The hundreds of research papers presented each year at biomechanics conferences throughout the world are not currently cataloged in any systematic manner. Given the serious time lag to publication in traditional journals, international access to many promising studies is delayed months, often years, and sometimes forever. With paper-based publication of conference proceedings, access to papers is limited to conference attendees. It is impossible for most scholars to attend all biomechanics conferences each year; even if one could accomplish such a feat and managed to lug back to one's office each and every conference proceedings, the job of searching through the thousands of pages to find relevant papers on a topic becomes exceedingly difficult. It is time for the biomechanics community to collectively decide to make their scholarly work available in a format which will be more widely available and useful than has been the case historically.

The American Society of Biomechanics has been moving forward in this direction with its last two annual conferences. Complete electronic proceedings were created as a supplement to the traditional paper volume of the 1997 Clemson conference. Full text and graphics of papers presented at the conference can be viewed online from the ASB web site. The database is fully text searchable allowing any interested researcher to easily find current research on specific topics. This experiment continues with the NACOB conference in Waterloo this summer—full two page abstracts of papers will be available online for any interested party. ASB intentions are to maintain these databases for general access forever—or at least until a better general access archival method becomes available.

Problems have arisen in this process which many presenters at the recent conferences may recognize. Graphical figures are often a central component of communicating results in scientific papers. Unfortunately, typical graphical formats for web publication (gif and jpg) are supported by relatively few applications commonly used for data analysis. Requiring authors to submit graphics in these formats has saved considerable work for the conference web editors, but it has challenged many authors to discover how to get their figures converted appropriately. Complaints and/or non-compliance were the responses of many authors. Fortunately, this problem is currently disappearing as web graphics are being included in most new versions of graphics software.

A more difficult problem involves the use of embedded equations within the text of a paper. There is no currently available method for easily including such non-standard text within a line. The only available solution is to create a small graphical element for each equation and to write in appropriate HTML commands to display the graphic equation. This is a tedious, time intensive procedure for those editing the abstract web pages. Further, it compromises an author's control of the text of the paper and relies on web editors to correctly format such equations. No satisfactory solution to this difficulty currently exists. Authors can minimize such difficulties by writing in a manner which avoids reliance on embedded equations within the text and where necessary to create their own equation graphics for inclusion in electronic publication of the paper.

Such difficulties need not be obstacles for researchers. As the web continues to develop, tools and techniques will certainly improve the process of electronic publication. In the meantime, we certainly are willing to help authors overcome formatting difficulties with their papers. Next year's annual conference submissions may involve new templates for help in creating the web versions of the abstracts. We are dedicated to getting the conference proceedings online and into a growing, comprehensive database of biomechanics research.

ASB has been breaking new ground in this direction for the biomechanics community; however, numerous other organizations and conferences need to be brought into this endeavor to make it truly useful. If biomechanics scholars worldwide push for inclusion of their work into a comprehensive research database, it may generate sufficient enthusiasm to stimulate conference organizers and international societies to join this effort which will benefit all of us.

## **Attention ASB Members**

If you are interested in becoming more active in the Society (e.g., serving on a committee or chairing a conference session), contact Suzanne Smith, Education Committee Chair (page 4) with your name, address, phone/fax number, email address, and your desired involvement. This information will be included in a data base which is periodically updated and distributed to the Executive Board. Thanks!

# Funding Opportunities

I recently had the opportunity to participate in a grant writing seminar that was organized by Dr. Robert Lucas of Cal Poly San Luis Obispo and the Institute for Scholarly Productivity. I would like to share with you some of the information provided in Dr. Lucas' seminar and provide you a brief list of references that may be useful in your pursuit of external funding. This list is by no means comprehensive. However, you should realize that numerous resources have become available on the internet and are only a mouse click away. Happy Hunting!

Critical clues for succeeding in the grants world (by R. Lucas)

- \* Become familiar with the granting patterns of sponsors.
- \* Volunteer for proposal review committees on campus or at granting agencies.
- \* Write before you are ready. There will never be enough time to write the perfect proposal.
- \* Use your campus grants office to locate sponsors and to help you budget the proposal.
- \* Read the guidelines thoroughly and believe everything they say.
- \* Contact the program officer at the sponsor to make sure your idea fits the guidelines.
- \* Be prepared to send the program officer a concept paper. Early feedback will significantly increase your chances of being funded.
- \* Write a concise, informative summary. The abstract is a critical element of a proposal and often the one most poorly written.
- \* Quantify your objectives. If you can't quantify them, they are more likely goals and belong in the introduction.
- \* Develop a compelling and convincing methodology. The most frequently cited reason for turning down a proposal is a weak methods section.
- \* Write at least four drafts and no more.
- \* Study the criteria in the guidelines for awarding grants and review your proposal with these in hand.
- \* Make your proposal easier to read by creating headings and subheadings. Use figures and tables to break up text.
- \* Stay positive. If your proposal is turned down, use the reviewer's comments to revise and strengthen it.
- \* Resubmit your proposal. The acceptance rate for resubmitted proposals is higher than that for proposals submitted the first time around.
- \* And finally, remember, one of the best ways to get a grant is to write a proposal.

## USEFUL RESOURCES

### Published Funding Sources

ARIS Funding Reports: Biomedical Sciences: San Francisco, CA: Academic Research Information Systems  
ARIS Funding Reports: Social and Natural Sciences: San Francisco, CA: Academic Research Information Systems

Bird, S., J. et al. (1992). Grants at a Glance: A Directory of Financial Resources for Women in Science (2nd ed.) Washington, DC: The Association for Women in Science.

### Books on Grant Proposal Writing

- Bauer, D.G. (1988). The "How To" Grant Manual: Successful Grantseeking techniques for Obtaining Public and Private Grants (2nd ed.), New York: Collier Macmillan Publishers.
- Coley, S.M., & Scheinberg, C.A. (1990). Proposal Writing. Newbury Park, CA: Sage Publications.
- Krathwohl, D. (1988). How to Prepare a Research Proposal (3rd ed.). Syracuse, NY: Syracuse University Press.
- Locke, L.F., Spirduso, W.W., & Silverman, S.J. (1993). Proposals that Work: A Guide for Planning Dissertations and Grant Proposals (3rd ed.). Newbury Park, CA: Sage Publications.
- Meador, R. (1991). Guidelines for Preparing Proposals (2nd ed.). Chelsea, MI: Lewis Publishers.
- Miner, L.E. (1997). Directory of Biomedical and Health Care Grants 1998 : With a Guide to Proposal Planning and Writing (12th Ed). Oryx Press.
- Miner, L.E. & Griffith, J. (1993). Proposal Planning and Writing. Phoenix: Oryx Press.
- Reif-Lehrer, L. (1995). Grant Application Writer's Handbook, Boston: Jones and Bartlett Publishers.
- Schwartz, S.M. & Friedman, M.E. (1992). A Guide to NIH Grant Programs, New York: Oxford University Press, 1992.

### Internet Sites

- Air Force Office of Scientific Research  
<http://web.fie.com/fedix/afosr.html>
- American College of Sports Medicine: Research Opportunities (Links) <http://www.acsm.org/sportsmed/outfund.htm>
- Community of Science <http://cos.gdb.org/>
- Grantscape: Grant Seeking 101 <http://www.grantscape.com/omaha/grants/services/101.html>
- Grantsmaker Information: Private Foundations on the Web (Links) <http://fdncenter.org/grantmaker/privmain.html>
- Howard Hughes Medical Institute <http://www.grantsnet.org/>
- International Society of Biomechanics: Funding Sources (Links) <http://www.kin.ucalgary.ca/isb/funding.htm>
- LRR.net(c): 10-Point Plan for Standard Grant Funding Proposal <http://www.lrr.net/grant1.htm>
- NASA: Research Opportunities Online  
<http://www.nasa.gov/newsinfo/research.html>
- National Institute of Health: Funding Opportunities  
<http://www.nih.gov/grants/>
- National Science Foundation: Grants and Awards  
<http://www.nsf.gov/home/grants.htm>
- Office of Naval Research: Science and Technology Directorate <http://web.fie.com/fedix/onr.html>
- Oryx Press: Grants Collection - A Guide to Proposal Planning and Writing <http://www.oryxpress.com/miner.htm>

Penn State University: Proposal Development and Preparation <http://infoserv.rtttonet.psu.edu/spa/fac-guid.htm>

Texas Research Administrators Group (TRAM): Research Funding Opportunities and Administration <http://tram.rice.edu/TRAM/>

The Grant Advisor Plus <http://grantadvisor.com/tgaplus/index.htm>

The Foundation Center Online: Private Foundations on the Internet (Links) <http://fdncenter.org/grantmaker/priv.html>

The Foundation Center's User-Friendly Guide to Funding Research and Resources (Internet Edition) <http://fdncenter.org/onlib/ufgtoc.html>

The Foundation Center's User-Friendly Guide to Funding Research and Resources Glossary of Terms <http://fdncenter.org/onlib/ufgloss.html>

The Whitaker Foundation <http://www.whitaker.org/biome.html>

UCLA Sponsored Research Glossary <http://www.research.ucla.edu/sr2/gloss.htm>

University of Georgia Gerontology Center: Grant Writing and Fundraising Information Resources <http://www.geron.uga.edu/grants.html>

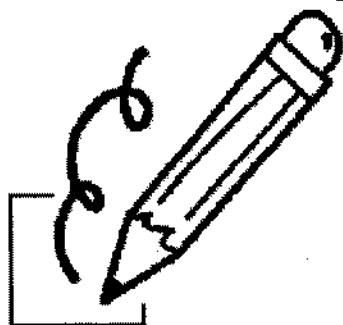
University of Miami: Internet Resources to Support Research at UM <http://chroma.med.miami.edu/research/>

University of Miami: Hints for Writing Successful NIH Grants (by Ellen Barrett) [http://chroma.med.miami.edu/research/Ellens\\_how\\_to.html](http://chroma.med.miami.edu/research/Ellens_how_to.html)

University of Michigan: Proposal Preparation and Submission <http://www.research.umich.edu/research/proposals/proposals.html>

*Do you have a question about funding opportunities that you would like to see addressed or perhaps a suggestion for a future column? Contact Peter Vint with your ideas ([pfvint@homas.uncg.edu](mailto:pfvint@homas.uncg.edu))!*

**Don't forget**



**to vote!**

## Commercial Members

Commercial 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. The benefits and fees for Commercial Members of the Society have been reorganized. Based on level of support, commercial membership categories in decreasing order are Sustaining Member, Supporting Member, Contributing Member, and Corporate Member. Companies wishing to become a Commercial Member are encouraged to contact either Trey Crisco or Mark Grabiner (page 4) for details.

The ASB Executive Board is pleased to recognize:

### SUSTAINING MEMBERS

***Peak Performance Technologies, Inc.***

### CONTRIBUTING MEMBERS

***Motion Analysis Corporation***

### CORPORATE MEMBERS

***Aircast***

***DePuy***

***Orthofix, S.R.L.***

***Tekscan***

We are also happy to acknowledge and thank the following companies for their past support:

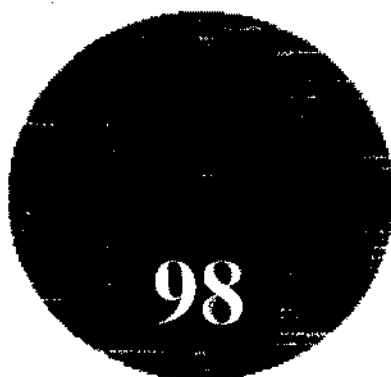
**Howmedica**

**Kistler Instrument**

**MTS Systems**

**Noraxon U.S.A**

All members of the Society are invited to suggest names of potential commercial members. Please send your suggestions to Trey Crisco, Membership Committee Chairperson, at the address indicated on page 4 of this newsletter. If you have a particular contact person at the company, please make sure to include his/her name.



## North American Congress on Biomechanics

### Meeting Chair

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### Awards Committee Chair

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University of Waterloo  
Waterloo, Ontario, Canada

August 14-18, 1998

## First Call for Abstracts

### Information

Information about the meeting, accommodations and/or a Call for Abstracts may be obtained from the meeting website.

### Abstract Deadline

Abstracts must be received by March 15, 1998 to be considered for presentation at the meeting. Notice of acceptance will be given by May 15, 1998. Information on abstract preparation can be found at the meeting website.

Please send an email message to indicate your intent to submit an abstract, and assist us in generating an email list, to: [nacob@healthy.uwaterloo.ca](mailto:nacob@healthy.uwaterloo.ca)

### Awards

The American Society of Biomechanics is pleased to annually award the Giovanni Borelli Award, the Pre- and Post-Doctoral Young Scientist Awards, the Clinical Biomechanics Award, the ASB Travel Fellowship, and the ASB/Microstrain Innovation in Biomechanical Instrumentation Award. We encourage you to submit applications and nominations for these prestigious awards. For more information, please see page 7 or contact the Awards Committee Chair.

### Meeting Website

<http://www.ahs.uwaterloo.ca/nacob98/>

