

Division of Comparative Biomechanics

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Chair-Elect 2009-2011

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Stephen M. Deban
Program Officer 2010-2012

Marianne Porter
Student/Postdoc Representative
2010-2013

Adam P. Summers
ICB Editorial Board Representative
2007-2012

Message from the Chair

Robert Full

This will be my last opportunity to address you in the newsletter as Division Chair. It has been an honor and privilege to start the new division. I especially want to thank Miriam Ashley-Ross, Frank Fish, Lou Burnett, Sally Woodin, Marvalee Wake and Brett Burk for all their hard work and advice. My goal in starting the division was to give comparative biomechanics a home. The quality and creativity of the science presented at our annual meetings by the next generation of young researchers in comparative biomechanics confirms that the Society of Integrative and Comparative Biology is the right place.

Membership

The Division of Comparative Biomechanics is now approaching 700 members adding nearly 100 more members since the Spring of 2010.

Elections

The new Division Chair, Sharon Swartz, will start at the end of the 2011 Meeting. As you can tell from her Chair-Elect Message in the Spring 2010 Newsletter, she is ready to further broaden our research and increase interdisciplinary participation. I am pleased to announce that you have selected a new Chair-Elect, Mark Denny. We thank Emily Carington for her participation.

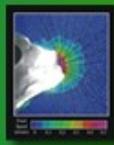
Meeting

We look forward to the Salt Lake City Meeting in 2011. The number of presentations and posters submitted continues to increase, as does the number of students competing for best paper and poster awards. We are particularly excited to support three symposia:

"Bioinspiration: Applying Mechanical Design to Experimental Biology" organized by B. Flammang. <http://www.sicb.org/meetings/2011/symposia/inspiration.php>

"The Biomechanics and Behavior of Gliding Flight" organized by R. Dudley. <http://www.sicb.org/meetings/2011/symposia/flight.php>

"I've Got Rhythm: Neuronal Mechanisms of Central Pattern Generators" organized by D. McPherson. <http://www.sicb.org/meetings/2011/symposia/rhythm.php>



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Carl Gans Award

I am pleased to announce that the first Carl Gans Award Competition is taking place and an award will be announced at the 2011 Meeting:

"The annual prize may be given either to an outstanding young investigator for distinguished contributions to the field of comparative biomechanics (eligible candidates are those who have completed their doctorate within the past seven years), or to any investigator for the single most significant contribution published in the preceding calendar year to the literature of comparative biomechanics, including research papers, review articles, and published books. The formal title for this award is "The Carl Gans Award," in recognition of Carl Gans' scientific career and editorial contributions to animal morphology, biomechanics, and functional biology. The Chair of the Division of Comparative Biomechanics shall appoint an Award Committee consisting of at least three divisional members with diverse interests to serve as judges. The Chair of the Division will designate one of the members as the chair of the Award Committee. Committee members will normally serve for no more than three years, with at least one member being replaced each year. Candidates may either apply directly or be nominated for either type of award, and must be members of SICB. Past winners of the Bartholomew Award are ineligible to compete for the Gans Award. Applicants shall submit to the Chair of the Award Committee either a short description of their work together with selected reprints (outstanding young investigator), or a copy of either a research paper, review article, or book (best contribution to the literature). A curriculum vitae must also be submitted, along with three letters of support. Nominators must arrange for these same materials (except that only two additional letters of recommendation are required) to be submitted to the Committee. The Committee may recommend for approval one candidate to the Chair of the Division, who may authorize reimbursement of appropriate expenses incurred by the winner in attending the annual SICB meeting. The awardee will be presented with a certificate signed by all current

Divisional officers. According to available funds, the Chair may also authorize a research award to further the following themes: 1) general field and laboratory work in comparative biomechanics, 2) collaborative work with scientists in Israel, 3) travel to visit Ben-Gurion University (Sde-Boqer Campus) and the Gans Library, and to conduct fieldwork in Israel, and 4) support of collaborative international research. These research themes are in recognition of Carl Gans' efforts to promote and foster international collaborations among scientists, as well as his ability to show that all animals are interesting. Donations to the Carl Gans Award Fund can be made via our Secure Online Contribution Form on the SICB home page.

NSF IGERTs in Biomechanics

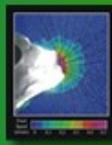
Two Integrative Graduate Education and Research Traineeships (IGERTs) are available in biomechanics. Please encourage your best undergraduates to apply.

1. IGERT: Biological and Bio-inspired Motion Systems Operating in Complex Environments

UC Berkeley

PRINCIPAL INVESTIGATOR: Robert J. Full; Co-PIs: Ron Fearing, Mimi Koehl.

This IGERT will train biology and engineering students how to learn from natural design – a process termed biological inspiration. In particular, trainees will discover principles that underlie how organisms move in complex environments, and learn to use those principles as inspiration to design human-engineered systems. Four focus areas for research opportunities include the mechanics of systems that locomote, their control mechanisms, the structure and function of their materials, and their evolution. A three-stage training program integrates with the research focus and is facilitated by a new Berkeley center – **CiBER** – the **C**enter for **i**nterdisciplinary **B**iological-inspiration in **E**ducation and **R**esearch. Stage 1 offers a customized core



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curriculum to develop a common scientific language, and to discover opportunities to contribute to and benefit from bio- and bio-inspired motion systems. Trainees take a new research-based teaching laboratory where teams of biology and engineering students work together to make original biomechanical discoveries. This experience transitions them into Stage 2 where fellows begin research rotations and international experiences at leading European institutes guided by a "Bionics" network. In Stage 3 trainees learn the application of discovery through entrepreneurship courses and internships. Developing direct pipelines to a diverse group of undergraduates will encourage participation of women and underrepresented groups. Trainees will advance the field of motion science with research leading to novel inventions that may never have been considered by engineers such as gecko-inspired hairy adhesives, artificial muscles, new prostheses, and search-and-rescue robots. By sharing these advances with the public, non-scientists will see more clearly why we must preserve the diversity of species and their environments - before their secrets are lost forever.

Links:

CiBER-IGERT (Integrative Graduate Education and Research Traineeship)

<http://ciber-igert.berkeley.edu/>

CiBER – the Center for interdisciplinary Biological-inspiration in Education and Research

<http://ciber.berkeley.edu>

A Crucible for Biological Inspiration

<http://sciencematters.berkeley.edu/archives/volume5/issue36/story1.php>

Running, Swimming, and Flying for Science

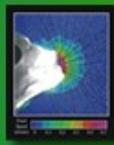
<http://sciencematters.berkeley.edu/archives/volume5/issue36/story2.php>

2. Integrative Training in Motor Control and Movement.

University of Chicago

PRINCIPAL INVESTIGATOR: Melina Hale

This Integrative Graduate Education and Research Traineeship (IGERT) project builds links broadly across Chicago's scientific community to develop an integrative training program for U.S. doctoral students in motor control and movement. To develop an integrative understanding of movement, it is necessary to address both the biology and the engineering of the systems involved and how they work together. Students from graduate programs at the University of Chicago and Northwestern University will obtain the biological and engineering backgrounds required to develop the integrative approach needed to take the field in new directions. Educational tools include a boot camp, a three-quarter common core curriculum, a discussion series, required laboratory rotations, and workshops and seminars at the Field Museum. The program will involve outreach to local Chicago-area schools, with training for students and faculty in the development and conduct of effective outreach. Mentoring of undergraduate students by IGERT graduate trainees will be done in close collaboration with local universities that primarily serve underrepresented minorities in the Chicago area. A trans-institutional website will highlight opportunities and results related to this program's IGERT goals and provide resources for teachers and students. IGERT is an NSF-wide program intended to meet the challenges of educating U.S. Ph.D. scientists and engineers with the interdisciplinary background, deep knowledge in a chosen discipline, and the technical, professional, and personal skills needed for the career demands of the future. The program is intended to catalyze a cultural change in graduate education by establishing innovative new models for graduate education and training in a fertile environment for collaborative research that transcends traditional disciplinary boundaries.



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Links

Website: <http://www.igert.org/projects/229>

Relevant conferences

Society of Experimental Biology

Annual Main Meeting 2011. The Society for Experimental Biology is pleased to announce that the 2011 Annual Main Meeting will return to the Scottish Exhibition and Conference Centre in Glasgow. The meeting will take place from the 1st - 4th of July 2011.

Open to members and non-members alike, the meeting will give you the opportunity to attend cutting edge scientific and education sessions as well as the chance to network with a range of biologists from all over the world.

Registration:

Registration for the meeting will be available from November 2010.

Call for Papers:

Abstract submission will open in October 2010.

Scientific Topics:

SEB Glasgow is multi-disciplinary. For a full list of scientific sessions running at the meeting please check here: http://www.sebiology.org/meetings/Glasgow_2011/Glasgow.html

More information on the scientific sessions will follow soon.

Students/Early Career Scientists:

Click here for information on travel grants available to students. SEB student grant applications will be opening on 1st October 2010. You can apply for a COB grant to attend the meeting on

a quarterly basis until 31st March 2011.

In particular, two sessions are relevant to our division.

“General Biomechanics”

Dates: 1st - 2nd July

Organized by: Peter Aerts (University of Antwerp) and Eize Stamhuis (Groningen University)

Contact: peter.aerts@ua.ac.be

Description:

The 'general biomechanics session' brings (young) scientists together dealing in their research with the mechanics of the most diverse topics in biology. From insect flight to suspension feeding, from horse locomotion to the mechanics of water transport in plants, from material properties to kinematics of bird flocks, from muscle mechanics to... all topics find their place in the session which is traditionally attended by a large and broadly interested audience. Moreover, six years ago, we started a new initiative: General Biomechanics Best Poster and Best Presentation prizes (3 for each category). Yet another reason to join us in Glasgow next year.

“Multi-scale mechanics of biological and bio-inspired hierarchical materials and surfaces”

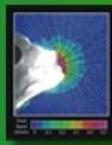
Dates: 3rd July (pm only), 4th July

Organized by: Thomas Speck (Plant Biomechanics Group Freiburg), Johan Van Leeuwen (Wageningen University), Tom Masselter (Plant Biomechanics Group Freiburg) and Claudia Fleck (Technical University Berlin)

Contact: thomas.speck@biologie.uni-freiburg.de

The American Society of Biomechanics

August 10 - 13, 2011. The 35th Annual Meeting of the American Society of Biomechanics, Long Beach, California.



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Program planning for ASB 2011 is currently underway. The complete ASB 2011 Schedule and Proceedings will be posted at: <http://www.asbweb.org/conferences/2011>.

The topics include aging, biofluidics, comparative biomechanics, cellular and tissue mechanics, computational biomechanics, ergonomics, imaging, injury prevention, instrumentation, locomotion, molecular motors, motor control, neuromechanics, orthopedics, prosthetics, rehabilitation, robotics, sports, tissue engineering, and vehicle occupant safety. Both modeling and experimental work at scales ranging from molecular to whole body.

International Society of Biomechanics

In 2011 ISB will be hosted in Brussels. It will be an exciting opportunity for scientists, experts and students to exchange ideas about the most recent advances concerning topics and approaches in the fields related to Biomechanics.

info@isb2011.org

Tutorials will take place on July 3rd. Attractive arrangements for social and networking activities will complete the scientific program.

- Paper submissions start: November 1st, 2010
- Registration Form: November, 1st, 2010
- Deadline for submission of abstracts: January 20th, 2011
- Abstract decision notification: March 31st, 2011
- Deadline for registration (early bird and presenters): April 30th, 2011
- Registration closes June 15th, 2011
- Tutorials: July 3rd, 2011
- Congress Days: July 3rd – 7th, 2011

Message from the Program Officer

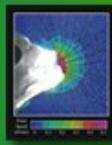
Steve Deban

Thanks to all of you for the flood of exciting biomechanics abstracts for SICB 2011. There will be over 250 contributed papers of remarkable diversity related to biomechanics in one way or another. Consequently there will be something for everyone each day of the meeting. In addition to the rich selection of contributed papers, DCB is supporting three symposia that should prove exciting for our members: "I've Got Rhythm: Neuronal Mechanisms of Central Pattern Generators" organized by D. McPherson on Tuesday, "Bioinspiration: Applying Mechanical Design to Experimental Biology" organized by Brooke Flammang on Wednesday and "The Biomechanics and Behavior of Gliding Flight" organized by Robert Dudley on Friday. DCB is also participating in hosting a multi-divisional dessert social midway through the meeting.

Salt Lake City is a beautiful city and the downtown area where we will be looks like a great place for the SICB meeting. Several hotels are an easy walk from the Salt Palace conference center where the oral and poster sessions are held. In addition, there are many good places to eat near the Marriott hotel and the conference center. The light rail system, Trax, will be free for SICB attendees traveling in the downtown area. A huge mall, the Gateway, has lots of dining options and is just a couple of stops away on Trax (about 5 minutes).

Looking beyond Salt Lake City, DCB is sponsoring two symposia for the 2012 meeting on computational methods, analysis and modeling of animal movement. If you have ideas for symposia for 2013 and beyond, the deadline for proposal is still far off (August 2011), but it is never too soon to bounce ideas off your program officer.

A final note about abstract submission for future SICB meetings: choose your abstract topics



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wisely! The three topics you choose when you submit your abstract play a huge part in determining the session in which your talk or poster is placed.

See you in Salt Lake. Bring your skis and snowboards.

Message from the Secretary

Miriam Ashley-Ross

It's that time of year, when the morning air begins to hold a real chill as autumn deepens, and the specter of the annual SICB meeting begins to loom large. January's meeting in Salt Lake City promises to be another hectic event, with more talks than we have time to see, but made more manageable by the addition of a half day of real meeting time. Tuesday – Friday will be four solid days of meetings, which should lessen some of the "concurrent sessions blues." DCB is once again making a strong showing, co-sponsoring three symposia and 29 contenders for Best Student Paper/Poster. Once again, **we will need judges for the student papers**, so I'd like to ask faculty/postdoc members of the Division to volunteer to be judges. What do the judges do? View the talks/posters to which you are assigned, and evaluate them according to the criteria on the judging form. Ask the students questions about their research, and encourage them. Why should you volunteer? To start with, you'll be seeing some of the best presentations of the meeting, and talking with enthusiastic young scientists. You'll also be letting them know that their efforts are appreciated and recognized, making it more likely that they'll remain DCB members. In short, it's a win-win situation – if you are willing to help, please contact our Division Chair, Bob Full (rjfull@berkeley.edu).

Election Results

In April we held an election to determine our next Division Chair-Elect, who will hold that office while Sharon Swartz is Chair, and then ascend to Chair in two years. Mark Denny and Emily Carington were the candidates, and Mark was

elected. Congratulations to him, and thanks to Emily for her willingness to serve.

At the end of the second SICB Executive Committee Meeting in Salt Lake City, Sharon Swartz will take over as the second Chair of the Division. A very special thanks to Bob Full, our first Chair, without whom the DCB would never have been started!

More elections

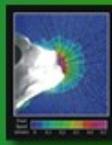
To save you all from LOESD (Lack Of Election Stress Disorder), we have yet another election coming up in the spring, to replace Yours Truly as Division **Secretary**. While I've enjoyed serving you all as Official Cat Herder, I think that six years in the position is enough – we don't want inertia to exert too much drag on the momentum of the Division. So I'd ask you to give some thought to the question of who would be willing and able to step into the position, and make your thoughts known to me or one of the other Divisional officers.

We will also elect the next **Program Officer**. Please pass along your ideas for candidates to the Divisional officers.

Researchers Database

In my capacity as Official Cat Herder for the DCB, it is my painful duty to once again inform you all that the Researchers Database on the divisional web page is woefully lacking. We are approaching 700 members in the division, yet less than 3% of that number are listed in the database! There's only one word to describe such a showing: *dismal*. The researchers database is a great tool for attracting potential students, and only takes a couple of minutes – most of us already have websites, and it's simple to copy the most salient points from that. So, if your name isn't in the database, please e-mail me a short description of your research, along with a nifty picture related to it and a title, for inclusion. It's simple, and the potential benefits far outweigh the costs.

See you in Salt Lake City!



Message from the Graduate Student/ Postdoctoral Affairs Representative

Marianne Porter

We all have our abstracts submitted and are busily trying to make it through the semester. Here are a few points of interest / reminders as our meeting in Salt Lake City nears:

- Please remember to register for the meeting as well as student support and funding if you are eligible.
- Now would be a good time to review guidelines for preparing good talks and posters! Those entered in student competitions should review the regulations to ensure that talks and posters do not get disqualified. For talks, make sure you stay on time and allow time for questions. The judges like that! Also, make sure the text in both talks and posters is a font size that judges can read!
- Remember what we talked about earlier this year regarding postdocs? Now would be a good time to email any prospective advisors. Do they have funding? Would you like to submit an NSF post doc grant with them? A full NSF grant? Do they have time to meet at SICB?
- Two symposia in SLC will be of interest to the DCB crowd: the Dudley flight symposium and the Flammang and Porter bioinspirations / biomimetics symposium.

Finally, you may want to come early or stay late after the meeting if you enjoy winter sports. The winter Olympics were recently held in SLC and there are any number of things to enjoy. See you all soon!