The Society for Integrative & Comparative Biology

SICB Newsletter

Spring 2014 Issue

Division of Comparative Biomechanics

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DCB Officers & Representatives

Mark Denny
Chair 2013-2015

Melina Hale
Chair-Elect 2013-2015

Sharon Swartz
Past Chair 2013-2015

Andrea Ward
Secretary 2014-2016

Joseph Thompson
Program Officer 2014-2016

Nicholas Gidmark
Student/Postdoc Rep 2013-2016

Message from the Chair

*Mark Denny, **Chair.DCB@sicb.org***

Marc Badger, Co-winner of Best Student Paper Competition

Ariel Camp, Co-winner of Best Student Paper Competition

Despite the travel woes, January's meeting in Austin was a rousing success—the second largest SICB meeting ever—with a vast array of concurrent sessions that kept us all in shape as we dashed from one venue to the next. Included in the mix were 65 presentations by DCB students participating in the competition for Best Student Talk and Best Student Poster. Congratulations to Ariel Camp from Brown University ("Comparison of cranial and axial muscle power for suction feeding in largemouth bass") and Marc Badger from UC Berkeley ("Shape-shifting through apertures: kinematic strategies and correlated flight metrics in Anna's Hummingbirds, (*Calypte anna*)") our co-winners in the talks category. We also have co-winners in the posters competition: Justine Allen from Brown ("Functional morphology of changeable skin papillae in octopus and cuttlefish") and Roshena Macpherson from Berkeley ("3D Particle Tracking to Analyze Predator-Prey Interactions in *Mnemiopsis leidyi*").

Justine Allen, Co-winner of Best Student Poster Competition

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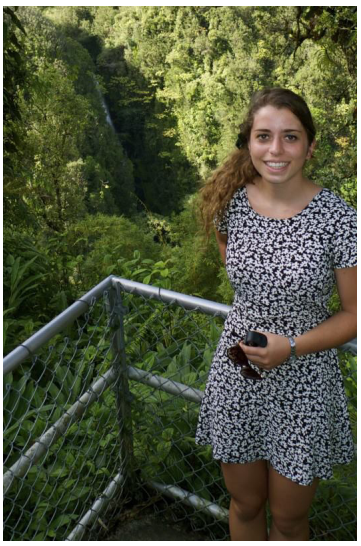


Roshena Macpherson, Co-winner of Best Student Poster Competition

Jake Socha again coordinated the competition, and we all owe him a round of applause for his efforts. Lining up judges, collating the responses, overseeing the voting, and providing students with feedback is a huge effort, and Jake does it with grace. He also puts considerable thought into how to make the competition better, and in consultation with others and discussion at the annual DCB business meeting, an intriguing idea has emerged.

In its current format, talks and posters in the student competition are scattered throughout the meeting. Add to that spread the large number of competitors, and the result is that each individual judge seldom sees all of the top entrants. Come time to pick the winners, this lack of uniform coverage can make for difficult decisions.

Next year we will change the format of the competition to avoid this problem. In the revised format, when registering for the meeting, students wishing to participate in the competition will, in addition to their regular abstract, submit a two-page extended abstract. A DCB committee will then choose from these submissions a short list of approximately six talks and six posters to be judged at the annual meeting. The talks will be given at a single session, allowing judges to see all the presentations, and thereby providing a level playing field for the competition. The posters will similarly be presented in a single session. Highlighting these contest sessions will also serve to increase attendance as members flock to see that best of DCB. So students, plan ahead; submitting abstracts will be a bit more arduous than in the past.

Every year DCB honors the memory of Carl Gans by presenting an award to an outstanding biomechanist. This year's winner of the Gans award is Chris Clarke of UC. Riverside. Like Carl Gans did before him, Chris finds and solves fascinating functional and evolutionary problems in novel and innovative ways.

Chris Clarke, Winner of the Gans Award

Thanks to Chris and his use of scanning laser Doppler vibrometry, we now know that hummingbirds hum at least in part because of the aeroelastic flutter of their feathers. Chris has made important progress in understanding the functional and behavioral consequences of possessing tails of different shapes, has begun to look at the energetics of courtship from a mechanical point of view, and, in a manner that Carl would have loved, has done much work on animals in the field. Chris is an outstanding young investigator and a worthy recipient of the Carl Gans Award.

I'd like to close by thanking Laura Miller (departing Program Officer) and Tim Higham (departing Secretary) for their valuable service to the Division.

Carl Gans Award Nominations for 2015

The Division of Comparative Biomechanics is pleased to announce this year's competition for the annual **Carl Gans Award**. This award is given annually either to an outstanding young investigator (eligible candidates are those who have completed their doctorate within the past seven years) for distinguished contributions to the field of comparative biomechanics, or to an investigator at any level for the single most significant contribution published in the past (2013) calendar year to the literature of comparative biomechanics, including research papers, review articles, and books. For either type of award, candidates may apply directly or be nominated, and must be members of SICB. Past winners of the Bartholomew Award are ineligible to compete for the Gans Award. Application materials shall be submitted to the Award Committee, chaired this year by Dr. John Long, and comprise either 1) a short description of their work together with selected reprints (outstanding young investigator), or a copy of a research paper, review article, or book (best contribution to the literature); 2) a curriculum vitae; and 3) three letters of support. Nominators must arrange for these materials (two additional letters of recommendation are required) to be sub- mitted to Chair of the Division (Dr. Mark Denny). The Award Committee will recommend for approval one candidate to the Division Chair, who will authorize reimbursement

of appropriate expenses incurred by the winner in attending the annual SICB meeting. The awardee will be presented with a certificate, and according to available funds, the Chair may also authorize a research award. Please send applications/nominations for this award to Dr. Mark Denny at **Chair.DCB@SICB.org** to be forwarded to the Award Committee. **The deadline for nominations is 22 August 2014.**

Message from the Divisional Program Officer

*Joseph Thompson (**DPO.DCB@sicb.org**)*

I'm in the embarrassing position of having to highlight the excellent program at the recent meeting in Austin despite not having lifted a finger to help organize it. So perhaps the best place to start this report is to acknowledge the outstanding work of the person who is responsible - outgoing DCB Program Officer Laura Miller. Laura worked hard to organize the diverse presentations of our members into coherently themed sessions, many with nifty names. She did a great job of not only soliciting symposium ideas but also shepherding them through the society-wide program officers' meeting in the early fall. In addition, Laura co-organized the first, to my knowledge, SICB education-themed symposium (see below). Please join me in thanking Laura (**lam9@email.unc.edu**) for her hard work.

The 2014 conference in Austin was a great success. The DCB sponsored or co-sponsored over 220 oral and 100 poster presentations. With the DVM, the DCB also co-sponsored two symposia: "Shaking, dripping and drinking: surface-tension phenomena in organismal biology" organized by David Hu, Rachel Levy, and Lydia Bourouiba, and "Terrestrial locomotion: Where do we stand, where are we going?" organized by Richard Blob and Tim Higham.

Looking ahead to the 2015 conference in sunny West Palm Beach, the DCB is co-sponsoring four symposia: (1) "Unsteady aquatic locomotion with respect to eco-design and mechanics," organized by Frank Fish and Paolo Domenici, and co-sponsored by the DCB, DVM, and DIZ; (2) "New insights into suction feeding biomechanics and evolution," organized by C. Darrin Hulsey, Steven Day, Tim Higham, and Peter Wainwright, and co-sponsored by the DCB, DIZ, and DVM; (3) "Leading students and faculty to quantitative biology through active learning," organized by Laura Miller and Lindsay Waldrop (SICB-Wide); and (4) "Towards a general framework for predicting animal movement speeds in nature," organized by Robbie Wilson (SICB-Wide). If you plan to give an oral or poster presentation at the 2015 conference, choose your abstract topic choices with care. As Laura Miller has mentioned to many of you, the DCB and DVM Program Officers organize abstracts submitted with the primary topic "Morphology." If you want your presentation to be handled by the DCB, please select "Morphology" as the first topic.

The deadline for symposium proposals is in late August 2014. Please let me know as early as possible if you are planning to submit a proposal. You can check out an older version of the symposium application form here: **http://sicb.org/meetings/2015/call-symp.php**. The application includes a link to the NSF guidelines for funding symposia. Registration, lodging, and travel expenses can be paid from divisional funds (often more than one division) as well as from grants from outside agencies, journals and publishers, and equipment companies. I encourage you to contact those who have successfully obtained external funding for advice.

I look forward to reading your abstracts in September. See you in West Palm!

Message from the Secretary

*Andie Ward (**Secretary.DCB@sicb.org**)*

Despite the gloomy weather that led to a number of our members not making it to Austin, the annual meeting turned out to be one of the best yet. First, I would like to send out a big thank you to Tim Higham for being a great divisional secretary over the past two years. He worked diligently to keep the membership informed on happenings in biomechanics.

During the spring elections, we will vote to elect a Chair-Elect. The nominees for Chair-Elect are Bill Kier of UNC Chapel Hill and Sheila Patek of Duke University. We will also be voting on the names of our best student presentation awards.

DCB Vote for Naming the Student Awards on the Spring Ballot

During the 2014 business meeting, the membership made nominations for names of our best student presentation awards. We are placing these names on the spring ballot (in May) and will take the top two vote-getters for each award and vote on them at the next divisional business meeting (January 2015 in West Palm Beach).

Oral Presentation
A.W. (Fuzz) Crompton
Farish Jenkins
Mimi Koehl
Karel Liem
Steve Vogel
Steve Wainwright

Poster Presentation
A.W. (Fuzz) Crompton
Farish Jenkins
Mimi Koehl
Karel Liem
Steve Vogel
Steve Wainwright

I would also like to remind our members of two great digital resources for SICB members. The SICB Digital Library contains a fantastic repository of education materials that pertain to biomechanics (**http://sicb.org/dl/biomechanics.php3**). Please add to this database if you have materials that you think others might find useful. We also have a researcher's database for members of DCB (**http://sicb.org/divisions/DCB/researchers.php3**). This is a great opportunity for faculty who are looking to attract potential students, or students and post-docs who would like to publicize their work. Please contact me if you would like to contribute to the researcher's database.

If you have any events that you would like advertised, please let me know and I will incorporate them either into a newsletter or submit the information to the SICB member update that comes out monthly.

Minutes of the DCB Business Meeting, January 5, 2014 (click here)

Election Information: Candidate Biographies

Candidates for Chair Elect
William M. Kier

Current Position: Professor of Biology, University of North Carolina at Chapel Hill

Education: B.A., Marine Science, Colgate University, 1978; Ph.D., Zoology, Duke University, 1983

Professional Experience: Chairman, Department of Biology, University of North Carolina, Chapel Hill, NC, 2008-2013; Associate Chairman, Department of Biology, University of North Carolina, Chapel Hill, NC, 2002–2008; Professor, Department of Biology, University of North Carolina, Chapel Hill, NC, 1999–present; Visiting Researcher, Ine Marine Laboratory, Ine, Japan, 2001; Associate Professor, Department of Biology, University of North Carolina, Chapel Hill, NC, 1991-1999; Visiting Researcher, Marine Biological Laboratory, Woods Hole, MA, 1998, 1999, 2000; Assistant Professor, Department of Biology, University of North Carolina, Chapel Hill, NC, 1985-1991; Visiting Researcher, Stazione Zoologica, Naples, Italy, 1985; Visiting Researcher, The Laboratory, Marine Biological Association of the United Kingdom, Plymouth, England, 1984-1985, 1997, 1998; Visiting Research Fellow, Department of Zoology, University of Sheffield, Sheffield, England, 1984-1985; Postdoctoral Fellow, North Atlantic Treaty Organization Fellowships in Science, National Science Foundation, 1984-1985; Postdoctoral Scholar, Department of Biology, Woods Hole Oceanographic Institution, Woods Hole, MA, 1983-1984.

SICB Activities: Member-at-Large, Executive Committee, Society for Integrative and Comparative Biology, 2002-2005; SICB Nominating Committee, Chair, 2004-2005

Other Memberships: American Association for the Advancement of Science, American Malacological Society, American Microscopical Society, Marine Biological Association of the United Kingdom, Sigma Xi

Research Interests: comparative biomechanics, in particular the functional morphology of musculoskeletal systems; muscle structure, function, specialization, development and evolution; invertebrate zoology, molluscs, in particular cephalopod biology, biologically inspired engineering

Goals Statement: The Division of Comparative Biomechanics has grown rapidly into one of the most interactive, vibrant, exciting, and active divisions of the SICB. I would be delighted to serve and to facilitate its continued growth and development. I have been pleased to see the great success of our student paper and poster awards along with the Carl Gans Award and am particularly committed to continuing to support and encourage the students, postdocs, and young faculty in our division. The DCB also has many potential opportunities for collaboration and coordination with other SICB divisions, such as Vertebrate Morphology, Comparative Physiology and Biochemistry, and Invertebrate Zoology and I intend to continue to foster these interactions.

Sheila Patek

Current Position: Associate Professor, Biology Department, Duke University, Durham, NC.

Professional Experience: Associate Professor, Department of Biology, University of Massachusetts, Amherst (2012-2013); Assistant Professor, Department of Biology, University of Massachusetts, Amherst (2009-2012); Radcliffe Fellow, Radcliffe Institute for Advanced Studies, Harvard University (2008-2009); Assistant Professor, Department of Integrative Biology, University of California Berkeley (2004-2009)

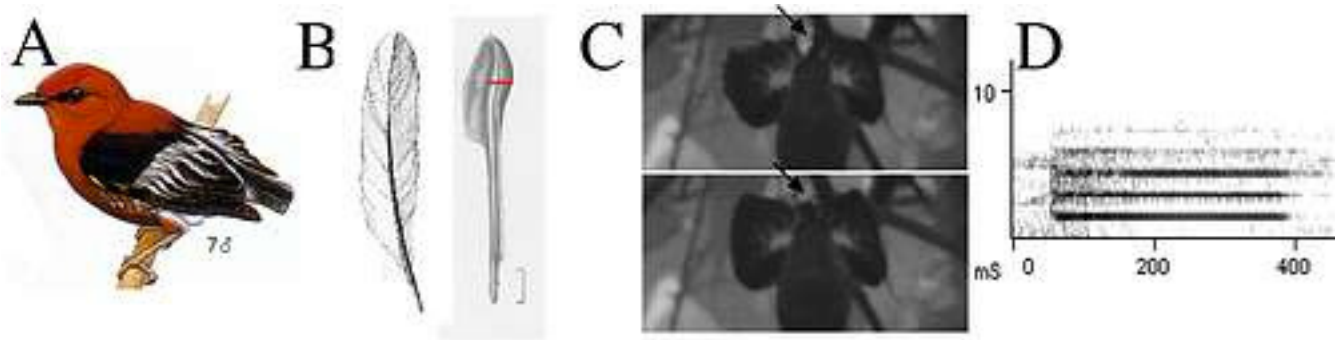
Education: Postdoctoral Fellow. Miller Institute for Basic Research in Science, University of California Berkeley (2001-2004); Ph.D. in Biology. Duke University, Durham, NC (1995-2001); A.B. with honors in Biology. Harvard University, Cambridge, MA (1990-1994)

SICB Activities: Chair, George Bartholomew Award Committee (2014); Moderator, Grand Challenges Workshop (2011); George Bartholomew Award Committee (2010-2013); Chair, Student Support Committee (2009-2015); Student Support Committee (2008); Judge best student paper award (2004, 2005, 2009)

Other Memberships: Sigma Xi, Society for the Study of Evolution

Research Interests: The primary goal of the research in Patek laboratory is to probe the dynamic interplay between evolutionary processes and basic physics. We address this issue in two broad systems -evolutionary physiology of communication in the sea and the evolutionary dynamics of fast animal movements - with most projects focusing on arthropods. Our tools range from high speed videography and acoustics to phylogenetics and physiology. For more information, visit **www.thepateklab.org**

Goals Statement: Biomechanics is a dynamic and growing field with impacts in many disciplines beyond biology. My goals are to promote the annual SICB conference as the yearly meeting place for organismal biomechanicians and to grow interdisciplinary involvement in our society and division. I would like to build our web presence and functionality to achieve stronger communication in DCB, draw scientists/engineers from other fields, and to enhance awareness of this field for funding, outreach and press opportunities. I would continue to support the recent initiatives to streamline and enhance our student award talks.



Highlight from the Researchers Database: *How birds make sounds with their wings and how did it evolve; Kimberly Bostwick*