



July 2023

The 2024 Annual Meeting: Abstract and Award Submissions, RIG Applications, and Open Door



ORS 2024 Annual Meeting
February 2-6, 2024 | Long Beach, CA

Abstract submissions are open for the 2024 ORS Annual Meeting. This is your opportunity to be a part of history when ORS celebrates 70 Years of musculoskeletal research, February 2-6 in Long Beach, CA. For more information, guidelines on submission, and a list of topics, click the link below. Abstract submissions will be open until Monday, August 28.

[Submit Your Abstracts](#)

Applications are open for **Research Interest Groups** (RIGs) to take place at the Annual Meeting. RIGs foster the thoughtful exchange of ideas within the global multi-disciplinary community of the ORS by providing the opportunity to engage in informative, transformative, and live discussion with colleagues in a specific area of musculoskeletal research, whether basic, applied, or clinical. To explore content that is complementary or different to the ORS Annual Meeting, RIGs are encouraged to focus on unique approaches, methodologies, diseases, or connections that inspire brainstorming across our multi-disciplinary groups.

Apply to Have a RIG at the Annual Meeting

Open Door 2024 will take place February 2, 2024 as part of the Annual Meeting. The goal of Open Door is to get students excited about the possibility of future careers in the musculoskeletal sciences, introducing them to a wide variety of professional pathways and work performed by ORS members. If you are interested in supporting or assisting with ORS Open Door 2024, please contact Meghan McGee-Lawrence at mmcgeelawrence@augusta.edu by August 31.

Get Involved with Open Door

Awards and grant submissions are now being accepted for the 2024 Annual Meeting. [CLICK HERE](#)

Featured Award: The Adele L. Boskey Award and application submission information.

This award is given annually to a mid-career (10 - 20 years beyond their PhD, MD, DVM) ORS member who has made significant contributions to the mentorship of rising scientists, engineers, and/or clinician/scientists in the fields of orthopaedics and musculoskeletal science and engineering. Emphasis is given towards the awardee's sustained commitment to mentorship and activities that advance diversity and inclusive excellence in these fields. This award is given in recognition of Dr. Adele L. Boskey's pioneering and seminal research contributions, her sustained commitment to mentorship throughout her decades-long career, and to the legacy of orthopaedic clinician/scientists, biologists, and engineering researchers and leaders that she launched. It includes an honorarium of \$5,000 and a commemorative plaque. Applications for this award are due by August 14.

Apply for the Adele L. Boskey Award

Save The Date!



ORS Tendon Conference 2024:

Mechanism to Therapy – Emerging Technologies and Therapeutic Outcomes

May 30, 2024 - June 1, 2024

Mayo Clinic

Rochester, MN

More information coming soon!

Research Section Member Spotlights



Megan Killian, Ph.D., M.S.

Current Title, Department, Employer:

Assistant Professor

Department of Orthopedic Surgery, University of
Michigan Medical School

I'm the first one in my family to go to university, and I received my B.S. in Biomedical Engineering from Michigan Technical University where I ran cross-country and track. My interest in athletics led me to pursue an M.S. in Movement Science and Biomechanics at Montana State University with Michael Hahn (who is now at the University of Oregon). I returned to Michigan Technical University for my Ph.D. in Biomedical Engineering after that, and postdoc'd at WashU from 2010-2015. I've been a professor since 2016, and although I am an engineer by training, my lab now largely focuses on developmental biology and mechanobiology. We are investigating how musculoskeletal interfaces adapt and change in response to mechanical stimuli during growth and disease. Some fun personal tidbits about me are that I run a lab with my husband and I have a 17-year-old cat.

Who have been your mentors?

Over the years, I have had and maintain a strong network of peer mentors whom I go to for support and advice like Joel Boerckel, April Kloxin, Evangelia Bellas, and folks I met several years ago on New PI Slack. I've had many encouraging and kind mentors and sponsors over the years, including Steve Thomopoulos, Tammy Haut Donahue, Eli Zelzer, Karin Silbernagel, Susan Brooks, Michelle Caird, Kurt Hankenson, Karl Jepsen, Matt Silva, and David Ornitz. I appreciate them a lot for their honesty and constructive support especially when I have needed it the most!

What are your specific research areas and expertise?

We are specifically focused on the tendon-bone enthesis and how disruptions in mechanical loading disrupt its growth and homeostasis. Specifically, we are exploring how FGF signaling and mechanical loading regulates enthesis growth and remodeling. We use a wide range of transgenic mouse models, biomechanical testing of mouse tendons, molecular biological techniques, and lots of histology and imaging.

What are you currently working on?

We're excited right now about using optogenetics to control skeletal muscle contraction in vivo. It has been very useful for studying how increased mechanical loading from muscle induces tendon and enthesis adaptation during skeletal growth. We're also exploring the role of HIFs and hypoxia in tendon/enthesis development and healing.

What has been the biggest challenge for you in your research?

One of the biggest challenges is figuring out what are the important questions to ask and how to go about asking them. Because there are many interesting questions to ask, where to prioritize focusing the research efforts can be difficult sometimes.

What project(s) are you looking forward to in the near future?

We're currently collaborating with Eli Zelzer to extend our mechanical stimulation optogenetics models into neonate and embryonic stages of tendon/enthesis development. This will hopefully yield exciting new findings for the tendon field and also skeletal biologists in general.

What do you want to do next in your career?

One thing I love about this job is being a mentor and working in peer and trainee mentoring circles. I want to continue to build on the strong mentoring models both at University of Michigan and more broadly to help postdocs and graduate students grow as people and as scientists and feel empowered to pursue the careers that fit best for their life goals.

What advice would you give young investigators in the field?

For people who are still figuring out where they want to go career-wise, build up comfort in the confidence of your own decisions. You can map your own course. What works for someone else may not be the right path for you and only you can discern that. Also, learning how to recognize when to incorporate feedback and when not to is a skill gained over time. Recognize the value in building resiliency to feedback/criticism, but also keep an open mind. It's a balance.

When you're not in the lab, what do you like to do for fun?

I am an outdoorsy person so I like to backpack and hike whenever I can. This summer, I am joining some friends from all over the country for a canoe trip in the Boundary Waters. I also still enjoy running and we assembled a home gym during the pandemic, so I also do a bit of barbell training these days. Also, I like craft beer and sitting outside, so Ann Arbor in the summer is a wonderful place!

How can we follow you?

- **Website:** <https://killian.lab.medicine.umich.edu//>
- **Twitter:** @megankillian

**Spencer Szczesny, Ph.D., M.S.**

PhD in Bioengineering from the University of Pennsylvania
MS in Mechanical Engineering from MIT
BS in Mechanical Engineering from the University of Pennsylvania

Current Title, Department, Employer:

Dr. Szczesny is an Associate Professor at the Pennsylvania State University with a joint appointment in the Departments of Biomedical Engineering and Orthopaedics & Rehabilitation. He completed his postdoctoral training in 2017 as an NIH NRSA F32 Fellow and obtained a PhD in bioengineering in 2015 at the University of Pennsylvania. Prior to his doctorate, Dr. Szczesny developed medical implants as a design engineer for Aesculap Implant Systems and as a research assistant at the Helmholtz Institute for Biomedical Technology in Aachen, Germany. He obtained a MS in mechanical engineering at the Massachusetts Institute of Technology in 2005 and a BS in mechanical engineering at the University of Pennsylvania in 2003. Dr. Szczesny's current research examines how cells in tendon sense the mechanics of their local microenvironment (e.g., strains, stiffness) and how their response drives changes in tissue mechanical properties during tendon degeneration, repair, and development, which is supported by the National Institutes of Health, National Science Foundation, Congressionally Directed Medical Research Program, and other non-profit organizations. His contributions to the field of tendon biomechanics and mechanobiology have been recognized by a 2022 NSF CAREER Award, 2022 CMBE Rising Star Award, 2016 ORS New Investigator Recognition Award (NIRA) finalist, 2015 Acta Student Award, and two-time winner of the SB3C PhD competition. Dr. Szczesny is also committed to improving diversity, equity, and inclusion within engineering. To that end, he served as the Diversity Chair for the 2022 Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C). He was also a member of the Diversity, Equity, and Inclusivity Committee for the Orthopaedic Research Society and the Department of Biomedical Engineering at Penn State. Finally, he is a member of the Race and Marginalized Populations Workgroup for the State College Area School District.

Who have been your mentors?

I have been fortunate to have several mentors over my scientific career. My PhD and postdoc advisors, Dawn Elliott and Rob Mauck, have been incredibly supportive in shaping me as a scientist and supporting my career progression after departing their labs. Additionally, Jess Snedeker has been a wonderful senior colleague who has encouraged me and provided me with so much advice and resources while I was getting my lab started as a new investigator. Finally, I am deeply indebted to Steffen Leonhardt, who took me into his bioelectronics lab as a young mechanical engineer and opened my eyes to the possibilities of biomedical engineering.

What are your specific research areas and expertise?

Our lab investigates the mechanical behavior and structure of tendons at multiple physical length scales to better understand what drives functional changes during disease, repair, and development. Additionally, we study how the structure and mechanics of the tissue provides mechanical signals to tendon cells and influences tissue remodeling.

What are you currently working on?

We currently have 3 main projects. The first is to understand the mechanical stimuli and mechanotransduction mechanisms that drive fatigue-induced tendon degeneration. The

second is to identify the essential structural changes that drive tendon embryonic development. Additionally, we are interested in learning why biological pathways produce these structural changes and to see whether they can be used to enhance the maturation of tissue engineered tendon constructs. Finally, we have a project investigating the differential response of allograft and autograft anterior cruciate ligament reconstructions to mechanical loading. Specifically, we are interested in testing the hypothesis that poor allograft remodeling is due to deficient mechanobiology.

What has been the biggest challenge for you in your research?

As a new investigator, the hardest thing that I have found is to accurately predict the projects that will be difficult from those that will go relatively smoothly. This is further complicated by the different capabilities and needs of each graduate student. Additionally, there are competing interests of what might make the most sense scientifically to do versus what can get done in time for them to graduate. I haven't figured out a solution to this other than to be adaptable and transparent with each graduate student.

What project(s) are you looking forward to in the near future?

Now that I am tenured, I am excited to explore new research and service opportunities. In particular, I have become very interested in improving representation of women and racial minorities in engineering, particularly within academia. To that end, I will be spending my sabbatical performing engineering education research with Dr. Catherine Berdanier at Penn State University to investigate the challenges that female postdocs experience in pursuing a faculty position.

What do you want to do next in your career?

Now that my lab is established, I am looking forward to making substantive progress on my main three research projects regarding tendon remodeling and mechanobiology. Additionally, in the next 5-10 years, I am interested in leveraging my budding understanding of engineering education within an administrative position to improve outcomes for women and minorities in engineering.

What advice would you give young investigators in the field?

My biggest piece of advice for junior investigators (at least what I would tell my younger self) is to spend time figuring out what funding opportunities make the most sense for your research interests. I spent a lot of time applying to every funding opportunity I could find my first couple years, which was great for refining my ideas and learning what was out there. However, I ultimately found the best success applying for grants that were more focused on high risk/reward, which matched my own research interests. Additionally, I became more comfortable being direct and transparent about my interests in my proposals, rather than trying to force my ideas into grant mechanisms that didn't make sense for my work. Finally, I learned to stop feeling guilty deleting emails about potential funding opportunities that didn't work for me.

When you're not in the lab, what do you like to do for fun?

I am currently obsessed with golf and recently shot a score of 80, which was something I previously hadn't thought possible! All my other free time I spend with my family and kids doing mostly whatever things young kids like to do (currently, that is skiing and Legos).

How can we follow you?

- **Website:** <https://sites.psu.edu/szczesnylab/>
- **Twitter:** @spence_sz3

Special Issue Published Articles

Huang AH, Galloway JL. [Current and emerging technologies for defining and validating tendon cell fate](#) (2023).

Thomas P. Leahy, Ashley K. Fung, Stephanie N. Weiss, Nathaniel A. Dymment, Louis J. Soslowsky. [Investigating the temporal roles of decorin and biglycan in tendon healing](#) (2023).

Giuseppina Di Giacomo, Gianluca Vadalà, Luca Ambrosio, Claudia Cicione, Veronica Tilotta, Francesca Cannata, Fabrizio Russo, Rocco Papalia, Vincenzo Denaro. [Irisin inhibits tenocyte response to inflammation in vitro: New insights into tendon-muscle cross-talk](#) (2023).

Thomas J. Kremen, Brendan Y. Shi, Shannon Y. Wu, Oskar Sundberg, Varun Sriram, Won Kim, Dmitriy Sheyn, Karen M. Lyons, Weiguang Wang, Charles E. McKenna, Ichiro Nishimura. [Biologically-coupled bisphosphonate chaperones effectively deliver molecules to the site of soft tissue-bone healing](#) (2023).

Jason C. Marvin, Molly E. Brakewood, Mong L. S. Poon, Nelly Andarawis-Puri. [Regenerative MRL/MpJ tendon cells exhibit sex differences in morphology, proliferation, mechanosensitivity, and cell-ECM organization](#) (2023).

Naoaki Ito, Rodrigo Scattone Silva, Haraldur B. Sigurðsson, Daniel H. Cortes, Karin Gräware Silbernagel. [Challenging the assumption of uniformity in patellar tendon structure: Regional patellar tendon morphology and mechanical properties in vivo](#) (2023).

Xiaozhong Zhu, Haifeng Wei, Hongyi Zhu, Wanrun Zhong, Bingbo Bao, Xingwei Li, Tao Gao, Xianyou Zheng, Jiong Mei. [Relative efficacy of three different tendon repairs in complete flexor digitorum profundus laceration in Zone I: A randomized controlled study](#) (2023).

Giselle Kaneda, Julie L. Chan, Chloe M. Castaneda, Angela Papalamprou, Julia Sheyn, Oksana Shelest, Dave Huang, Nadine Kluser, Victoria Yu, Gian C. Ignacio, Arkadiusz Gertych, Ryu Yoshida, Melodie F. Metzger, Wafa Tawackoli, Andrea Vernengo, Dmitriy Sheyn. [iPSC-derived tenocytes seeded on microgrooved 3D printed scaffolds for Achilles tendon regeneration](#) (2023).

Anthony N. Aggouras, Brianne K. Connizzo. [Earlier proteoglycan turnover promotes higher efficiency matrix remodeling in MRL/MpJ tendons](#) (2023).

Christelle Darrieutort-Laffite, Zakary M. Beach, Stephanie N. Weiss, Jeremy D. Eekhoff, Louis J. Soslowsky. [Knockdown of biglycan reveals an important role in maintenance of structural and mechanical properties during tendon aging](#) (2023).

Spencer E. Szczesny, David T. Corr. [Tendon cell and tissue culture: Perspectives and recommendations](#) (2023).

James Johnson, Devin von Stade, Ben Gadomski, Daniel Regan, Jeremiah Easley, Katie J. Sikes, Kevin Troyer, Tianjian Zhou, Ted Schlegel, Kirk McGilvray. [Biomechanical and histological changes secondary to aging in the human rotator cuff: A preliminary analysis](#) (2023).

Jennifer A. Zellers, Masoud Edalati, Jeremy D. Eekhoff, Reika McNish, Simon Y. Tang, Spencer P. Lake, Michael J. Mueller, Mary K. Hastings, Jie Zheng. [Quantative MRI predicts tendon mechanical behavior, collagen composition, and organization](#) (2022).

Guest Editors:

- Nathaniel Dymont, Ph.D. (UPenn)
- Andrew Kuntz, MD (UPenn)
- Louis Soslowsky, Ph.D. (UPenn)

Find or Post Events on the New Orthopaedic Events Calendar



A new orthopaedic events calendar has been added to the ORS website. The events listed are of potential interest to those in the orthopaedic community. ORS Members are welcome to submit applicable events at no charge through the Submit Event button at the top of the calendar on the site. Institutions or sponsors interested in posting an event are welcome to do so in exchange for a donation to ORS. For information, please email ors@ors.org.

[Find or Post Events](#)

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