

**MATERIALS SCIENCE AND ENGINEERING (MS&E) SEMINAR SERIES**  
**Friday October 1, 2021 at 3:00 pm in room ESB 251****“Design and Fabrication of Soft Electronics and Soft Robots for Hard Challenges”**

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**Abstract:** Soft electronics and soft robotics have attracted increasing attention over the past decade due to their great potential in a variety of applications from personalized healthcare and human-machine-interface to smart agriculture and smart cities. In this talk, I will first present our recent progress on the design and fabrication of printed, flexible, and stretchable electronics using low-dimensional nanomaterials and advanced manufacturing technologies. Then, I will demonstrate how we innovate the energy harvesting and storage device for self-powered electronic systems. Finally, I will discuss how to develop novel soft robotics and machines for collaborative, intelligent, and safe interactions with human beings in real-world applications. The possible applications of the soft electronics and soft robots for personalized healthcare, biomedical treatment, as well as inspection or surveillance will also be demonstrated.

**Biography:** Dr. Changyong Cao obtained his Ph.D. degree in Mechanical Engineering and Materials Science from the Australian National University (ANU). Then he worked as a postdoctoral associate in the Departments of Mechanical Engineering & Materials Science and Electrical & Computer Engineering at Duke University. He has been a faculty member in Packaging, Mechanical Engineering, and Electrical & Computer Engineering at Michigan State University, directing the Laboratory for Soft Machines and Electronics (SME). Dr. Cao’s current research interests include the mechanics and applications of soft/hybrid materials, soft robotics, self-powered electronic systems, and 3D/4D printing of multifunctional materials. He has published over 58 papers in leading peer-reviewed journals and is holding 3 US patents. His research has been funded by NSF, USDA, DOE, US-DOT and MEDC. Dr. Cao is serving as the Associate Editor of IEEE Robotics and Automation Letters and the Guest Editor and Editorial Board Member of Forces in Mechanics (Elsevier). He is a member of ASME, SES, MRS, IEEE, USACM, and ACS.



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