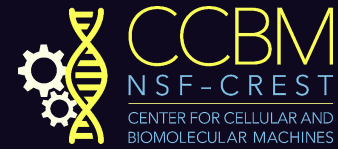




Soft Living Active and Adaptive Matter



Light-degradable hydrogels as dynamic triggers for implantable devices

Ritu Raman
Massachusetts Institute of Technology

Abstract:

Triggerable materials capable of being degraded by selective stimuli stand to transform our capacity to precisely control biomedical device activity and performance while reducing the need for invasive interventions. This talk will cover the development of a modular and tunable light-triggerable hydrogel capable of interfacing with implantable devices. We have applied these materials to two applications in the gastrointestinal (GI) tract and demonstrated biocompatibility and on-demand triggering of the material in vitro, ex vivo, and in vivo. Light-triggerable hydrogels have the potential to be applied broadly throughout the GI tract and other anatomic areas. By demonstrating the first use of light-degradable hydrogels in vivo, we provide biomedical engineers and clinicians with a previously unavailable, safe, dynamically deliverable, and precise tool to design dynamically actuated implantable devices.

Date:
5/10/2021

Time:
9:00 AM-10:15 AM

About the speaker:

Dr. Ritu Raman is an engineer with expertise in regenerative medicine, with a focus on cell and gene therapies for neuromuscular disease. She is currently a postdoctoral fellow with Robert Langer at the Massachusetts Institute of Technology, funded by a L'Oréal USA Women in Science Fellowship and NASEM Ford Foundation Fellowship.



Dr. Raman received her B.S. magna cum laude from Cornell University and her Ph.D. from the University of Illinois at Urbana-Champaign as an NSF Graduate Research Fellow. She has received several recognitions for scientific innovation, including being named a Kavli Fellow by the National Academy of Sciences and being named to the MIT Technology Review 35 Innovators Under 35 list.

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