

The Department of Mechanical Engineering
College of Engineering and Applied Sciences
Stony Brook University

Mechanical Engineering Seminar



Sung Hoon Kang
Assistant Professor, Department of Mechanical Engineering
Johns Hopkins University

**Lecture Title: Architected Materials for Tunable Elastic Wave Propagation
and Reversible Energy Absorption**

Thursday, May 12, 2016 at 1:30 PM, Room 250 Light Engineering Building

Abstract

An architected material is a class of materials that provide new properties and behaviors different from those of bulk materials that the "material" is made of based on its architecture (geometry). With the progress of computational modeling and advanced fabrication technologies such as 3D printing, there have been active studies to investigate novel properties and behaviors that can give us new opportunities for engineering applications. In my presentation, I will introduce two examples of architected materials that we can control dynamic behaviors by harnessing deformation. Structures made of soft materials such as elastomers can make a large change of their architectures in response to stimuli. If excessive deformation is applied, structures can undergo dramatic changes of the architecture and may form new patterns. The non-linear behavior of highly deformable structures can change their functionalities through dramatic geometric rearrangements. In my presentation, I will talk about how we can harness behaviors of soft periodic structures for tunable elastic wave propagation and reversible energy absorption by design, fabrication, and characterization of architected materials.

Biography

Prof. Sung Hoon Kang is an Assistant Professor in the Department of Mechanical Engineering and Hopkins Extreme Materials Institute at Johns Hopkins University since January 2015. He earned a Ph.D. degree in Applied Physics at Harvard University and M.S. and B.S. degrees in Materials Science and Engineering from MIT and Seoul National University, respectively. Sung Hoon has been studying complex behaviors of material systems and structures with novel properties based on inspiration from nature as well as rational design followed by rapid prototyping using a 3D printer. By designing experimental model systems and/or using computational models, he has been working on identifying key design parameters of systems so that we can make desired structures and properties by tailoring behaviors of systems. Throughout his career, Sung Hoon has co-authored over 25 peer-reviewed papers, has given over 40 presentations, and has one patent and two pending patents. He is an editorial board member of Scientific Reports and a guest editor of February 2016 issue of Materials Research Society Bulletin. He is a member of American Society of Mechanical Engineers (ASME), Materials Research Society (MRS), Society of Engineering Science (SES), and American Physical Society (APS).

Directions: Please refer to website: <http://www.sunysb.edu> or call 631-632-8310 for more information.
Check <http://me.eng.sunysb.edu> for any changes to location or time.



Stony Brook University