

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

Mechanical Engineering Seminar



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Friday, February 8, 2019 at 11:00 AM, Room 173 Light Engineering Building

Lecture: Failure-resistant Interfaces and Their Applications

Abstract

Interface is one of the most sophisticated components of a composite material/structure because it plays crucial role in the mechanical behavior of the material/structure. This talk will present our recent progress on the structural design and fabrication of failure-resistant interfaces by learning from nature. The study combines mechanical testing, multiscale simulation and materials fabrication to characterize mechanical behavior of structural materials, investigate failure/toughening mechanisms of the material/structure, and manufacture the failure-resistant interfaces, respectively. The short-term goal is to produce failure-resistant materials/structures for the applications such as dental crown, large-screen smartphone, flexible electronics, and so on. The long-term goal is to establish a mechanistically based platform for the design of robust composite materials/structures.

Biography

Dr. Niu is an Associate Professor in the Department of Mechanical Engineering and a joint Associate Professor in the Department of Materials Science and Engineering at City University of Hong Kong. She received a B.Eng. degree in Engineering Mechanics and a M.Eng. degree in Solid Mechanics from Tsinghua University, a M.S. degree in Mechanical Engineering from The University of Notre Dame, and a Ph.D. degree in Structural Materials from Princeton University. Prior to joining City University of Hong Kong as an Assistant Professor, she has worked as an R&D Engineer at MicroPort (Shanghai) Cooperation for less than a year. Her research interests include structural design of failure-resistant interfaces, mechanical behavior of solids, 3D printing and so on. Dr. Niu is an Executive Committee Member of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM) and an editorial board member of Scientific Reports.

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