

The 2017 DCAMM Annual Seminar Speaker

Zhigang Suo

Allen E. and Marilyn M. Puckett Professor of
Mechanics and Materials,
Harvard University
USA

gives the following lecture at the

Aalborg University
Auditorium 1.177
Pontoppidanstræde 111, 9220 Aalborg Øst

Mechanics and chemistry of hydrogels

Wednesday, October 4, at 13:00

There will be an open discussion after the lecture
at 14:00
(Refreshments are served)

This lecture aims at popularizing mechanical science to a broad audience of interested students and staff as well as engineers working in industry

The Danish Centre for Applied Mathematics and Mechanics, DCAMM, is a framework for internationally oriented scientific collaboration between staff members at a number of departments at the Technical University of Denmark, Aalborg University, Aarhus University and University of Southern Denmark. The "DCAMM Annual Seminar Speaker" is an initiative created to disseminate mechanics to a broader audience. For further information on DCAMM, see www.dcammm.dk



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Abstract

What can we do if water is a tough solid? A hydrogel aggregates water and a polymer network. The polymer network makes the hydrogel an elastic solid, but water in the hydrogel retains its molecular properties. Several recent findings show that hydrogels can achieve properties and applications well beyond previously imagined. Hydrogels can be made as tough as rubber, and retain water in low-humidity environment. Hydrogels are stretchable, transparent, ionic conductors, and enable devices that mimic muscles, skins, and axons. This talk describes the mechanics and chemistry of these materials and applications. Emphasis will be placed on recent progress on toughness, adhesion, water retention, and fatigue resistance.

