



# Meta-materials with Locally Addressable Properties: from Self-folding to Autonomous Propulsion

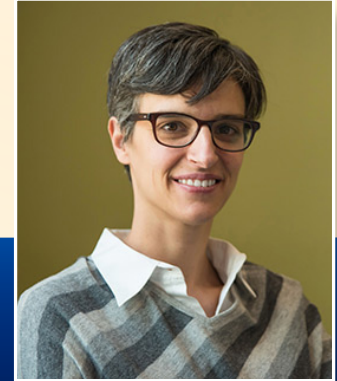
**Wednesday,  
September 20, 2017,  
3:30P.M.**

**Lower Level  
Auditorium,**

**Geddes Hall**

Refreshments served  
at 3:00 p.m. in  
365C Fitzpatrick Hall-  
Conference Room

Mechanical metamaterials are materials with a tailored, architected structure, designed to achieve properties that depart from those found in natural or more “conventional” engineering materials. Initial realizations of these materials were periodic and derived their properties from an interplay of the constitutive material responses and the architected geometry. More recently, developments in the field of metamaterials focused on the effects of disorder, nonlinearities and tunability. This increasing complexity allows material designers to control more precisely local constitutive and structural properties, and harvest the richness of nonlinear phenomena. Current trends suggest a growing interest in the creation of metamaterials with programmable responses and metamaterials with autonomously adapting morphology. In this talk, I will highlight some of our recent work in the control of stored energy in structured materials, to create programmable, nonlinear metamaterials and their possible application to engineering problems.



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## MIDWEST MECHANICS SEMINAR