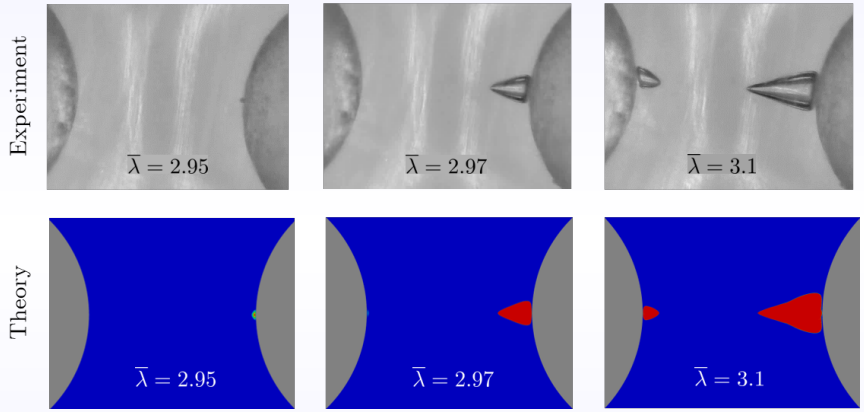
Special Course Spring 2019
CEE598 Constitutive Modeling of Engineering Materials

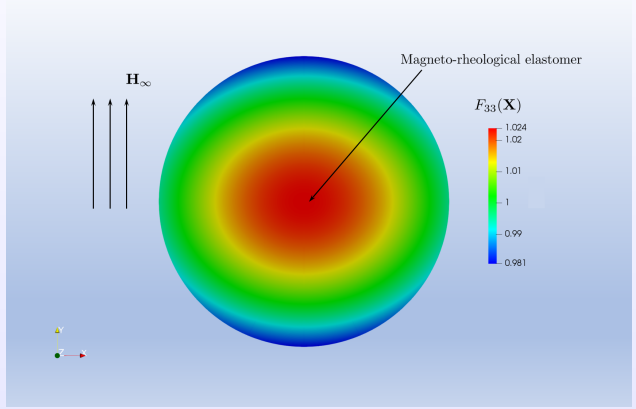
Instructor: Oscar Lopez-Pamies
Associate Professor, CEE (pamies@illinois.edu)

Lectures: MW: 2-3:20 pm
in Newmark 1311

Course Content:

- **Balance principles**
  - Conservation of Mass
  - Balance of Linear and Angular Momenta
  - Maxwell's Equations
  - Balance of Energy (1st Law of Thermodynamics)
  - Imbalance of Entropy (2nd Law of Thermodynamics)
  - Balance Laws for Configurational Forces
- **Constitutive theory**
  - Material frame indifference
  - Material symmetry
  - The two potential framework
    - ➢ Application to Viscoelasticity, Thermoelasticity, Ferroelectricity
    - ➢ Application to Poroviscoelasticity, Shape-Memory Materials, Fracture





Textbook: Topics are drawn from various monographs, lecture notes, review articles, and research monographs.

Grading: HW (20%), Project (40%), and Final Exam (40%)