

SCHOOL OF MECHANICAL & MATERIALS ENGINEERING  
**GRADUATE SEMINAR SERIES**

## Creep in Bending for Rapidly Evaluating Steady State Response of Materials

Presented by

**Dr. Praveen Kumar, Indian Institute of Science**

### Abstract

High temperature creep response of materials can be studied by bending. Realizing that bending generates a varying stress and strain fields throughout the sample, one may use digital image correlation (DIC) and quantitative formulations to acquire several “strain rate – stress” pairs from a single sample creeping under steady state. Such pairs can be readily used to determine stress exponent. We will discuss basic assumptions of creep in bending, related quantitative formulations, procedures that we have followed to obtain steady state creep response of materials, including size effect, in high throughput fashion, and possibility of using bending creep for evaluating the residual life of an in-use component.

### Biography

Praveen Kumar received his Ph.D. degree in Mechanical Engineering from University of Southern California, Los Angeles, CA, USA, in 2007. Prior to that, he received his Bachelor of Technology and Master of Science degrees in Mechanical Engineering in 2003 and 2005, from Indian Institute of Technology, Kanpur and University of Southern California, Los Angeles. He is currently an Associate Professor with the Department of Materials Engineering, Indian Institute of Science, Bangalore, India. His main research interests are mechanical behavior of materials, with particular emphasis on studying effects of electric current and sample length scale, and constructive usage of electromigration, both in solid and liquid metals.

**Thursday, March 21st, 2019**

**11:00am to Noon**

**ETRL room 101**

Meet the speaker before the seminar in ETRL room 119, 10:30am to 10:50am. Light refreshments will be served.



