Department of Mechanical Engineering Colloquium

UNIVERSITY OF CALIFORNIA
UC RIVERSIDE

The Department of Mechanical Engineering

PRESENTS

Jay Kruzic, PhD

School of Mechanical and Manufacturing Engineering, UNSW Sydney, Australia

Friday, March 9, 2018
WCH Room 205/206
11:10-12:00PM

Abstract:

Bulk metallic glasses (BMGs) are viewed as potential structural materials because they can exhibit impressive combinations of mechanical properties including extraordinary tensile yield strength (~1 – 5 GPa is common) and large elastic strain limit (~2%). Furthermore, some ductile BMG alloys are reported to have excellent fracture toughness that may rival some of the best conventional metal alloys. However, uncertainty in the mechanical properties limits potential commercial applications. In this presentation, it will be discussed how scatter in the fracture and fatigue behavior of BMGs is related to differences in the internal glassy structure, and how enhanced mechanical properties can be induced by creating favorable metallic glass structures.

About the Speaker:

Jay Kruzic has been a Professor at UNSW Sydney, Australia, in Mechanical and Manufacturing Engineering since 2016, and he has been Deputy Head of School since 2017. He received his B.S. degree in Materials Science and Engineering from the University of Illinois, Urbana-Champaign, in 1996 followed by M.S. and Ph.D. degrees in Materials Science and Mineral Engineering from the University of California, Berkeley, in 1998 and 2001, respectively. Following a period of three years as a postdoctoral fellow at Lawrence Berkeley National Laboratory he joined Oregon State University as an Assistant Professor in 2004. After being promoted to Associate Professor in 2008, he became Professor in 2014 in the School of Mechanical, Industrial, and Manufacturing Engineering at Oregon State University. His research focuses on the mechanical behaviour of a wide range of engineering materials (metals, ceramics, intermetallics, composites), biomaterials, and biological tissues, with emphasis on the mechanisms of fracture, fatigue, and deformation.