Joint Biomedical Engineering Seminar Series
MU ▪ MCW ▪ UWM

SEMINAR
Friday, September 22nd, 2017
12:00 – 1:00 pm
Kerrigan Auditorium

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"Finite Element Methods at Realistic Complexities"

Solving realistic, applied problems with the most modern numerical methods introduces many levels of complexity. In particular, one has to think about not just a single method, but a whole collection of algorithms: a single code may utilize fully adaptive, unstructured meshes; nonlinear, globalized solvers; algebraic multigrid and block preconditioners; and do all this on 1,000 processors or more with realistic material models. Codes at this level of complexity can no longer be written from scratch. However, over the past two decades, many high-quality libraries have been developed that make writing advanced computational software simpler. In this talk, I will introduce the deal.II finite element library (http://www.dealii.org) whose development I lead, and show how it has enabled us to develop simulators for a variety of complex problems including fluid dynamics and biomedical imaging. I will discuss some of the results obtained with these codes and comment on the lessons learned from developing such codes.

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Medical College of Wisconsin is located at 1101 N. 87th St., Milwaukee, WI 53226. Parking is available across the street in visitor parking. Refreshments will be served.