Brett Charles Collins

Graduate Institution: University of California-Berkeley

Graduate Discipline: Mechanical Engineering

Hometown: Chicago, IL

Relevant SC Research: Basic Energy Sciences

Research Interest:

Computational mechanics/physics, multiscale modeling with nonlinear effects, modeling of electromagnetic superconducting coils, finite element methods, and inverse problems involving the optimization and design of materials.

About Me:

I am a solid mechanics PhD student at Berkeley. My research is performed at Lawrence Berkeley National Laboratories in the Accelerator and Fusion Research Division, where I am modeling superconducting accelerator magnets. I obtained a B.S. and M.S. from the University of Illinois at Urbana-Champaign (UIUC) in mechanical engineering. My graduate research at UIUC involved the construction of periodic unit cells from tomographic images of particulate composites through the use of a parallelized genetic algorithm. I have also interned at Sandia National Laboratories, where I designed and simulated nonlinear electro-thermal microactuators. As an undergraduate, I studied the effects of coaxial impinging jets through the use of multigrid computational fluid dynamics and have also performed crack propagation analysis using finite element methods with non-matching meshes. My long term goals involve becoming a senior research scientist at a national laboratory.