Computational Mechanics Research Laboratory (CMRL)
Johns Hopkins University

Director: Prof. Somnath Ghosh, *Michael G. Callas Chair Professor*

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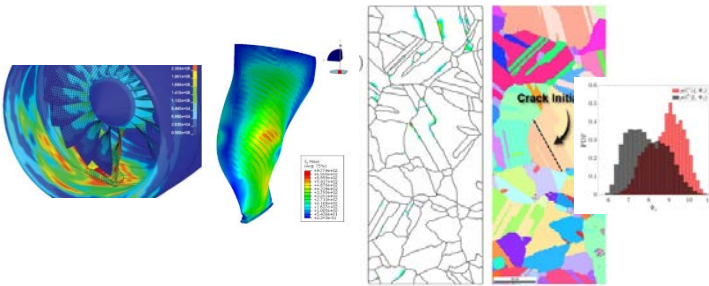*with full Fellowship/Research Assistantship*

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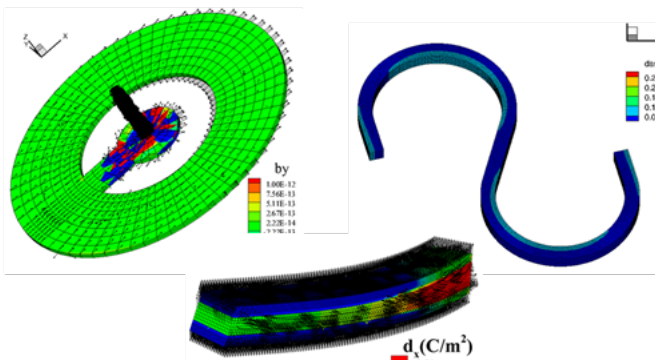### Prof. Somnath Ghosh
Departments of Civil & Systems Engineering, Mechanical Engineering and Materials & Science Engineering
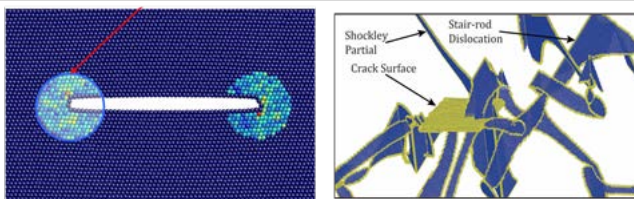Johns Hopkins University

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Data-Driven Modeling of Fatigue Cracking in Metallic Materials

Magnetic-Piezo-Electric-Mechanical Problems for Antenna and Sensors

**Atomistic Modeling of Crack Evolution and Homogenization**

CMRL at Johns Hopkins University is involved in a large and diverse computational research program, with significant national and international recognition.

Computational Mechanics is a mature discipline in Science and Engineering that develops computational methodologies to characterize, predict and simulate physical events.

Fields of Research in CMRL
- Data-Driven Modeling, Machine Learning and AI
- Multiple length/time scale and multiphysics modeling
- Uncertainty Quantification & Machine Learning
- Additive Manufacturing & Materials processing
- Mechanical-electro-magnetic problems antenna and sensor applications
- Fatigue and failure modeling of metallic materials
- Multiple scale damage modeling of composite materials
- Atomistic simulations of polymeric and metallic materials
- Novel computational model development
- Biomaterials, bio-implant and prosthetics
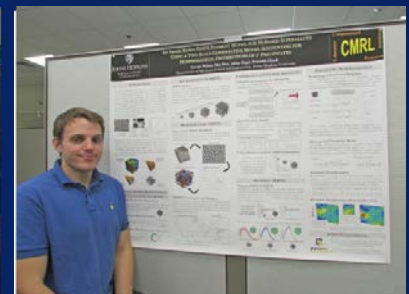
Data-Driven Multiscale Modeling of Failure in Woven Composites Materials