Phenomena such as global climate change, infrastructure deterioration, or the impact of extreme natural events has profound economic and societal impact. Such complex systems involve a wide range of length/time scales and disparate physical processes. The MCS Integrative Graduate Education & Research Traineeship Program seeks to train students to address such complex models in a multidisciplinary setting.

MCS IGERT Trainees with the assistance of over 20 of JHU’s faculty members spanning 8 different departments will gain the interdisciplinary knowledge to succeed as leaders in solving global problems of the future.

APPLICATION PROCESS

- Open only to U.S. citizens and permanent residents; first-generation college students and minorities are strongly encouraged to apply
- Submit an application to one or more of JHU’s participating departments. Verify application procedures, deadlines, and requirements directly with the department(s)
- Contact IGERT Program Coordinator, Tanya Waith, twaith@jhu.edu or 410-516-8766 to express specific interest in the MCS IGERT
- IGERT Trainees will be selected from a multidepartment pool of qualified applicants

The Johns Hopkins University, founded in 1876, was the first university in the Western hemisphere based on the European research institution, with a mission both to teach and to advance human knowledge, through discovery. Its establishment revolutionized U.S. higher education; today, it remains a world leader in education, research and patient care.

“Today, the university enrolls nearly 20,000 full-time and part-time students on three major campuses in Baltimore, MD, one in Washington, DC, and one in Montgomery County, MD, and facilities throughout the Baltimore-Washington area and in China and Italy.”

“The headquarters campus—Homewood—has nearly 4,600 full-time undergraduates and more than 1,600 full-time graduate students in two schools, the Krieger School of Arts & Sciences and the Whiting School of Engineering.”

“Johns Hopkins ranks first among U.S. universities in receipt of federal research development funds.

Contact: MCS IGERT or Tanya Waith
Johns Hopkins University
Department of Civil Engineering
3400 N. Charles Street, Latrobe Hall
Baltimore, MD 21218

Phone: 410-516-8766
Fax: 410-516-7473
E-mail: igert@jhu.edu
www.igert.jhu.edu/mcs
Every member of society is affected by decisions or predictions based on computational simulations of critical processes, such as energy production, environmental protection, and infrastructural integrity. The research conducted through this IGERT Program will address these complex problems directly through science-based coupling of models and parameterizations.

Students enrolled in this interdisciplinary program will be equipped to advance the science of coupling multi-scale/multi-physics models and receive an education that is more holistic than that provided by traditional discipline-specific Ph.D. programs.

**Interdisciplinary Sample Project Themes:**

- Linking molecular scale simulations to macroscopic mechanics
- Modeling emission and transport of aerosols into the atmosphere
- Evaluating ocean-atmosphere in order to advance models of global warming
- Understanding fragmentation of planetary bodies that occurs in hypervelocity impact

**PROGRAM BENEFITS**

- $30,000 annual stipend for 2-3 years
- Full tuition & health insurance for 2-3 years
- Option for dual degree program
- Close interaction with faculty from multiple departments
- Professional development & communications training series
- Cross-disciplinary communication, dissemination, and formulation of competitive research proposals
- Career-long network with other IGERT students via electronic portfolios
- Mastery of fundamental mathematical skills
- Internship opportunities
- Experience in outreach activities
- Funding for conference travel
- Funding for computers
- Faculty mentorship programs

**PARTICIPATING DEPARTMENTS**

- Applied Mathematics & Statistics
- Civil Engineering
- Chemical & Biomolecular Engineering
- Earth & Planetary Sciences
- Geography & Environmental Engineering
- Materials Science & Engineering
- Mechanical Engineering
- Physics & Astronomy