Katerine Saleme Ruiz

Postdoctoral Researcher at University of Luxembourg

**Education**

2010-2016 Ph. D. Degree in Computational Engineering. Mississippi State University

2007-2009 Master Degree in Mathematics. Universidad Nacional de Colombia

2000-2005 Bachelor Degree in Mathematics. Universidad de Córdoba

**Current Interests**

My research interests focus on the numerical solution of problems with scientific and industrial applications in the fields of computational mechanics and material science. In particular, I am highly interested on understanding and predicting the micromechanical behavior of heterogeneous materials by modeling and simulating their discontinuous nature as well as development of dimensionality reduction models for large-scale multi-interface problems.

**Research Specialties**

Integrated computational material engineering: Development of multiscale methods for MBD energy calculations in large systems, development of discrete element models for fracture in polycrystalline materials, digital microstructure reconstruction and analysis, raw material characterization based on image analysis

Numerical analysis: Performance analysis of algorithms, consistency, stability and convergence analysis for numerical schemes, solution of coefficient identification problems in linear parabolic equations

**Positions**

2016-2017 Postdoctoral Research Fellow at George Mason University

Developed modeling techniques, simulation and analysis for complex material systems

2010-2016 Graduate Research Assistant at Center for Advanced Vehicular Systems Mississippi State University

Developed algorithms for digitally generate microstructures, modeling and simulation of the mechanical behavior of polycrystalline materials

2015 Research Intern at Corning Incorporated

Developed tools based on image analysis for raw material characterization

2012-2013 Research Intern at U.S. Army Engineer research and Development Center

Prepared image analysis and digital material characterization software for simulating nano composites