Other - Porcelli Lecture

## Homogenization of Integral Energies Under Periodically Oscillating Differential Constraints

**Irene Fonseca**

Carnegie Mellon University

Digital Media Center Theatre
April 05, 2018 - 10:30 am

**Abstract:**

(The talk is intended to be accessible to Graduate Students.)
A homogenization result for a family of integral energies is presented, where the fields are subjected to periodic first order oscillating differential constraints in divergence form. We will give an example that illustrates that, in general, when the operators differential operators have non constant coefficients then the homogenized functional may be be nonlocal, even when the energy density is convex. This work is based on the theory of A-quasiconvexity with variable coefficients and on two-scale convergence techniques.

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**Speaker's Bio:**

An internationally respected educator and researcher in applied mathematics; Irene Fonseca is the director of Carnegie Mellon's Center for Nonlinear Analysis (CNA). The CNA is one of the few centers in the United States that receives significant federal funding for research in applied mathematics.

In recognition for her contributions to the advancement of research in her area of expertise, Fonseca was bestowed a knighthood in the Military Order of St. James (Grande Oficial da Ordem Militar de Santiago da Espada) by the then-President of Portugal, Jorge Sampaio, in 1997. For her teaching and research contributions to Carnegie Mellon University, Fonseca was honored with the Mellon College of Science endowed chair in 2003 and named a University Professor in 2014. In 2012, she was elected President of the Society for Industrial and Applied Mathematics (SIAM), one of the largest organizations dedicated to mathematics and computational science in the world.

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**This lecture has refreshments @ 10:00 am**



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