**THE UNIVERSITY OF CHICAGO** | **THE COMMITTEE ON COMPUTATIONAL AND APPLIED MATHEMATICS**

## COLLOQUIUM

# KUI REN

Department of Applied Physics & Applied Mathematics
Columbia University

## State-dependent Diffusion for Global Optimization

### THURSDAY, April 20, at 4:00 PM

Jones 303, 5747 S. Ellis Ave. Chicago, IL 60637

### ABSTRACT

We propose and analyze a gradient descent algorithm with added stochastic terms for finding the global optimizers of nonconvex optimization problems, The main feature of the algorithm is that the size of the randomness is tuned adaptively based on the value of the objective function. We show, in the setup of the discrete algorithm not its continuous limit, that it is possible for the algorithm to achieve global convergence with an algebraic rate. We will discuss possible generalizations of the algorithm for applications.

This talk is based on joint works with Bjorn Engquist and Yunan Yang.

_____