

College of Arts and Sciences  
**Department of Mathematics**  
University of South Carolina

# Math Colloquium

## *Anomalous Diffusions and Fractional Order Differential Equations*

Zhen-qing Chen, University of Washington

Host: Hong Wang



**Thursday**  
January  
**25<sup>th</sup>**

**4:30 PM**  
**LeConte 412**

Anomalous diffusion phenomenon has been observed in many natural systems, from the signalling of biological cells, to the foraging behaviour of animals, to the travel times of contaminants in groundwater. In this talk, I will first discuss the interplay between anomalous diffusions and differential equations of fractional order. I will then present some recent results in the study of these two topics, including the counterpart of DeGiorgi-Nash-Moser-Aronson theory for non-local operators of fractional order. No prior knowledge in these two subjects is assumed.

Professor Zhenqing Chen got his Ph.D from Washington University in St. Louis in 1992. He then worked at USCD and Cornell University before joining the University of Washington in 1998, where he was promoted to full professor in 2003. His research area is in Probability Theory and Stochastic Analysis. He has served in several editorial boards including the Annals of Probability and the Annals of Applied Probability. Currently, he is the Editor-in-Chief for Potential Analysis, and the Coordinating Editor of Applied Mathematics, Probability and Statistics for the Proceedings of the American Mathematical Society. He is a Fellow of AMS and IMS.