UNIVERSITY of WISCONSIN
UW **MILWAUKEE**

Department of
Mathematical Sciences

Colloquium
Dr. Qingshuo Song

Associate Professor

Worcester Polytechnic Institute

Dr. Qingshuo Song

UW-Milwaukee
Department of
Mathematical Sciences

EMS Building, Room E403
3200 North Cramer Street
Milwaukee, Wisconsin 5321
414-229-4836
math-staff@uwm.edu

Solvability of General Solution and a Related Exit Problem

We study sufficient conditions for a Feynman-Kac functional up to an exit time to be the generalized viscosity solution of a Dirichlet problem. The key ingredient is to find out the continuity of exit operator under the Skorokhod topology, which reveals the intrinsic connection between overfitting Dirichlet boundary and fine topology. As an application, we establish the sub and supersolutions for a class of non-stationary HJB (Hamilton-Jacobi-Bellman) equations with fractional Laplacian operator via Feynman-Kac functionals associated to α-stable processes, which lead to the existence of strong solution to the original HJB equation. It's a joint work with Yuecai Han and Gu Wang.

Light refreshments will be served at 3:00pm in E424A.

Visit our website for more information on other Department events: www.uwm.edu/math

POWERFUL IDEAS | **PROVEN RESULTS** ®