Probability Seminar

Title: Application of Stochastic Differential Equations to Boundary Value Problems

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Date: 22-06-2018
Time: 2:00 pm

Place: Room MAT-A(Miniauditorium)

Abstract: Some boundary value problems can be solved using the methods of stochastic analysis. Perhaps the most celebrated example is Shizuo Kakutani's 1944 solution of the Dirichlet problem for the Laplace operator using Brownian motion.

We will present some results that serve to solve semi-elliptic second order partial differential equations using an Itô process that solves an associated stochastic differential equation.

References

[1] Dynkin, E.B . (1965) *Markov Processes*, Vol.1. Springer-Verlag.

[2] Kakutani, S. (1944). *Two-dimensional Brownian motion and harmonic functions.* Proc. Imp. Acad. Tokyo: 706-714.

[3] Oksendal, B.K. (2003).*Stochastic Differential Equations: An Introduction with Applications.* (Sixth ed.). Berlin: Springer.