



SEMINAR

SCHOOL OF MATHEMATICS AND STATISTICS

DATE: 25 JANUARY 2019

TITLE

Standard Brownian motion

VENUE | TIME

Seminar Room I
04:30 P.M.– 05:30
P.M.

SPEAKER

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ABSTRACT

We first define the stochastic process known as the standard Brownian motion. We then prove the existence of such a process using the Haar functions on $[0,1]$ due to Kallianpur and then extend it to all of \mathbb{R}^+ . Then we discuss some basic properties such as scaling, translation invariance after a stopping time, the reflection principle, Donsker-Varadhan theorem, Kallianpur-Robbins thm on estimation of L_1 integrals on \mathbb{R} using SBM, non differentiability of sample paths, finite quadratic variation, and conclude with Black-Scholes formula for European stock price option.