Workshop in Stochastic Analysis and Applications

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Functional Itô Calculus and Applications to Stochastic Control

Yuri Fahham Saporito
FGV - Brazil
yuri.saporito@fgv.br

Abstract

In this talk we will review the recent developments on Functional Itô calculus, FITO in short. Created (or discovered) by Bruno Dupire and published in a seminal paper in 2009, this calculus is a generalization of It?s classical theory and allows us to examine models where the history of certain factors plays an important role. We will present the general theory and survey the theoretical unfolding of FITO. As an application, we will show how this theory allows us to consider stochastic control problems with path-dependence influence of the control in the dynamics of the state process.