

Séminaire de mathématiques et leurs applications

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Title: Partial differential equations on networks and their control, a new approach of stochastic games.

Abstract: In this talk we will focus on non linear partial differential equation arising on junctions, satisfying non linear and non dynamic Neuman boundary condition at the junction point. We give results on existence and uniqueness of regular solutions, and sketch the proof which differs from the classical approach with fixed point argument. Therafter, we will focus on the stochastic control theory, where we introduce a new stochastic game, where the state of control is the probability of moving to another edge. We conclude by giving Feynman Kac's representation of solutions, making the link between the stochastic and the PDE theory.