Pricing Financial Derivatives with Jump-Diffusion Processes, the corresponding partial integro-differential equations and application to maximum drawdown

PRESENTED BY:
Dr. Libor Pospíšil
Department of Statistics
Columbia University

Friday, November 06, at 04:15 PM
Room: 3209 (Graduate Center of CUNY)

In this talk, we assume that the price of an asset can be modeled as a diffusion process plus a compound Poisson process. Subsequently, we address the question of pricing contracts involving maximum drawdown of the asset. Given the complexity of the underlying model, the most suitable method is deriving the partial integro-differential equations and solving them numerically. The special feature of the equations is the presence of the running maximum and the running maximum drawdown, which may be discontinuous due to the jumps in the asset price. We will also discuss the question of hedging.