Brownian Trading Excursions

THORSTEN RHEINLANDER

(in collaboration with F. Hubalek, P. Krühner)

Financial & Actuarial Mathematics Vienna University of Technology Wiedner Hauptstr. 8/E105-1 1040 Vienna Austria

We study the stochastic heat equation with multiplicative noise as a model for the relative volume distribution in a Brownian limit order book model, and express its solution as a local time functional. Moreover, in a model corresponding to the fundamental solution, we classify different trading times and derive the Laplace transforms of the times to various types of trades. This gets applied to order avalanches.