Séminaire de Probabilités et Statistique

Mercredi 06 Février à 11h00

Laboratoire Dieudonné

Salle de réunion Fizeau - LJAD

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Precise asymptotics : robust stochastic volatility models

We present a new methodology to analyze large classes of (classical and rough) stochastic volatility models, with special regard to short-time and small noise formulae for option prices. Our main tool is the theory of regularity structures, which we use in the form of [Bayer et al ; A regularity structure for rough volatility, 2017]. In essence, we implement a Laplace method on the space of models (in the sense of Hairer), which generalizes classical works of Azencott and Ben Arous on path space and then Aida, Inahama–Kawabi on rough path space. When applied to rough volatility models, e.g. in the setting of [Forde-Zhang, Asymptotics for rough stochastic volatility models, 2017], one obtains precise asymptotic for European options which refine known large deviation asymptotics.