

Stochastic path-dependent volatility models for price-storage dynamics in natural gas markets and discrete-time swing option pricing

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This talk is concerned about the price-storage dynamics in natural gas markets. A novel stochastic path-dependent volatility model is introduced with path-dependence in both price volatility and storage increments. The calibrations are conducted for the combined price-storage dynamics. Additionally, we discuss the pricing problem of discrete-time swing options using the dynamic programming principle, and a deep learning-based method is proposed for numerical approximations. The talk is based on joint work with Antony Ware and Yang Yang.

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