

*Title: Path-Dependent Volatility*

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Abstract: So far, path-dependent volatility models have drawn little attention from both practitioners and academics compared with local volatility and stochastic volatility models. This is unfair: in this talk we will show that they combine benefits from both. Like the local volatility model, they are complete and can fit exactly the market smile of the underlying asset; smile calibration is achieved using the particle method. Like stochastic volatility models, they can produce rich implied volatility dynamics; for instance, they can generate large negative forward skews, even when they are calibrated to a flat smile. But path-dependent volatility models can even do better than that: thanks to their huge flexibility, they can actually produce spot-vol dynamics that are not attainable using stochastic volatility models, thus possibly preventing large mispricings; and they can also capture prominent historical patterns of volatility, such as volatility depending on the recent trend of the underlying asset, for instance. We will give many examples and show many graphs to demonstrate their great capabilities.