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Cool Math behind Asian options

Since Asian options were first introduced in Tokyo in 1987, there have appeared almost 3600 research papers related to these financial derivatives (according to Google Scholar web search). One may wonder, what makes these particular options so attractive to researchers in Mathematical Finance? We think that one of the reasons is that there is a lot of beautiful Mathematics related to pricing Asian options. The goal of this talk is to discuss some of the mathematical theories involved in pricing Asian options, both in the classical Black-Scholes setting and in the more general case of Levy driven models. In particular, we will discuss the connections with self-similar Markov processes and the Lamperti transformation, the recent results of N.Cai and S.Kou on Asian options for processes with hyper-exponential jumps, and our recent results on processes with jumps of rational transform.