

ASIAN OPTIONS AND MEROMORPHIC LÉVY PROCESSES

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The content of the talk will be a discussion of the pricing of Asian options when the underlying is modeled by a meromorphic Levy process. I show how we can use an existing technique involving a double Laplace inversion (Cai and Kou 2011), to develop prices for any process in the meromorphic class. In particular, this approach gives a price for Asian options when the underlying is modeled by a process with paths exhibiting two-sided jumps, infinite activity, and/or infinite variation. To date, no pricing approaches have been developed for such a general case. In the process of describing the solution to the pricing problem, I will also discuss an interesting theoretical result. Namely, I'll show that the Mellin transform of the exponential functional of a process in the meromorphic class is an infinite product of gamma functions. This leads to the conclusion that the exponential functional is equal in distribution to the infinite product of beta random variables. This is joint work with my supervisor, Alexey Kuznetsov.

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