



HACETTEPE ÜNİVERSİTESİ MATEMATİK BÖLÜMÜ GENEL SEMİNERİ

(HACETTEPE UNIVERSITY MATHEMATICS GENERAL SEMINAR)

Tarih (Date): 21.11.2018, Çarşamba (Wednesday)

Saat (Time): 15.00

Yer (Place): Yaşar Ataman Seminer Salonu

Konuşmacı (Speaker): Arş. Gör. Dr. Sinem Kozpınar, ODTÜ

Başlık (Title): Spread and basket option pricing in a Markov-modulated Lévy framework with synchronous jumps

Özet (Abstract):

This paper considers the evaluation of spread and basket options when the underlying asset prices are driven by Markov-modulated Lévy processes with synchronous jumps. In particular, the asset prices may jump whenever there is a change of phase of the underlying Markov process. We further allow for dependence between the different price dynamics. In this general regime-switching framework, we provide lower and upper bounds to the exact option prices based upon ideas from the literature without regime switching. These bounds are obtained via univariate Fourier inversion under the assumption that the joint characteristic functions of the Markov-modulated Lévy processes are known. We study these obtained spread and basket option price approximations in different regime-switching models. Several numerical experiments are included and these show that, especially, the lower bounds have a very high precision.