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Catastrophe Options with Stochastic Interest Rates

This talk will focus on the pricing and hedging of catastrophe put options when interest rates are stochastic and losses are generated by a compound Poisson process. The asset price process is modeled through a jump-diffusion process that is correlated to the loss process. We obtain explicit formulæ for the price of the option, and the Greek hedging parameters Delta, Gamma and Rho. Furthermore, numerical experiments are carried out to illustrate the effect that stochastic interest rates and the variance of the loss process have on option prices. Finally, we explore some simulation results to study the effectiveness of a Delta-Gamma-Rho hedging scheme.

This is joint work with Tao Wang.