

1023-60-630

**Svetlana Boyarchenko** and **Sergei Levendorskii\*** (leven@eco.utexas.edu), Department of Economics, C3100, The University of Texas at Austin, 1 University Station, Austin, TX 78712.

*Optimal stopping in regime switching Lévy models, with applications to American options and real options.*

A general method for pricing of perpetual American and real options in regime-switching Lévy models is developed. In the finite horizon case, a modification of Carr's randomization method is used. Under weak regularity conditions, iteration procedures are constructed and their monotone convergence is proved for arbitrary switching rates. Numerical examples demonstrate that the method is accurate and reasonably fast if the switching rates are small. In each state of the Markov chain, which determines switches from one Lévy process to another, the payoff stream is a monotone function of the Lévy process labelled by the state. This allows for additional switching within each state of the Markov chain (payoffs can be different in different regions of the real line). The payoffs and riskless rates may depend on a state, which allows for jumps in prices at moment of switching. Special cases are stochastic volatility models and models with stochastic interest rate; both must be modelled as finite-state Markov chains. (Received September 19, 2006)