Ernest Jum* (ejum@utk.edu) and Jan Rosinski. Numerical approximations of stochastic differential equations driven by Levy processes. Preliminary report.

We consider the problem of simulation of a stochastic differential equation driven by a Lévy process. First, we replace the small jump part of the driving Lévy process by a suitable Brownian motion, as proposed by Asmussen and Rosinski, and obtain a jump-diffusion equation with good mean-square and weak error estimates. Next, we give both jump-adapted strong and weak numerical schemes in the spirit of Bruti and Platten. We then present numerical error estimates and give simulation results to illustrate our method. (Received January 27, 2014)