

1086-60-2105

Liqing Yan* (liqingyan2020@gmail.com), Department of Mathematics, Institute of Natural Science, 800 Dongchuan Road, Minhang District, Shanghai 200240. *Fast and Exact Simulation for the CIR processes*. Preliminary report.

We present an easy, fast and exact simulation method for the CIR processes. Our method is much faster than the Poisson method, which samples from gamma distributions with the shape parameter being a Poisson distribution. Our exact simulation is also faster than the numerical schemes when they require more discrete time points to reduce their discretization errors. The Poisson method is exact but unacceptably slow. The discretization schemes are fast, but involve big discretization errors. Due to the non-Lipschitzian diffusion coefficient function near zero, the discretization errors caused by numerical methods converge to zero very slowly, especially when the process is close to zero. Our method is exact and has no such troubles caused by the square-root function. (Received September 24, 2012)