"Asymptotic stability of balanced methods for stochastic jump-diffusion differential equations"

by Lin Hu, Siqing Gan, and Xiaojie Wang

Stefan Engblom[1]

[1]*Division of Scientific Computing,*
Department of Information Technology,
Uppsala University
SE-751 05 Uppsala, Sweden.
email: `stefane@it.uu.se`

Review

For a certain scalar linear jump-diffusion stochastic differential equation (jump SDE) the asymptotic stability (i.e. convergence to zero as time $t \to \infty$) is considered. Using the jump SDE as a test equation, two types of 'balanced' numerical methods are evaluated with respect to computational stability. For both methods it is shown by an analysis that for sufficiently small time steps the numerical schemes are asymptotically stable. Some basic numerical experiments illustrate these findings.

MSC 2010 classification: 60H35 (primary); 65C20 (secondary).