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Xiaobing Feng* (xfeng@math.utk.edu), The University of Tennessee, 218 Ayres Hall, 1403 Circle Drive, Department of Mathematics, Knoxville, TN 37996. *Finite element methods for the stochastic Allen-Cahn equation with gradient-type multiplicative noise.*

In this talk I shall present some recent developments on finite element approximations of the stochastic Allen-Cahn equation with gradient-type multiplicative noises and its sharp interface limit, the stochastic mean curvature flow (SMCF). The focuses of the talk will be on discussing the new difficulties arising from numerical analysis of this nonlinear stochastic PDE and on illustrating the analytical techniques for overcoming these difficulties. Numerical results obtained by fast Monte Carlo finite element solvers will also be presented. This is a joint work with Yukun Li of Ohio State University and Yi Zhang of University of North Carolina at Greensboro. (Received January 25, 2019)