1060-35-206 **Levent Kurt*** (e108007@yahoo.com), 365 Fifth Ave, New York, NY 10016, and **Tobias Schaefer** (tobias@math.csi.cuny.edu), 2800 Victory Blvd 1S-215, Staten Island, NY 10314. *Impact of stochastic perturbations on ultra-short solitons.*

We study the propagation of ultra-short short solitons in a cubic nonlinear medium modelled by nonlinear Maxwell's equations with stochastic variations of the susceptibility. Using a modified multi-scale expansion for stochastic systems, we derive a new stochastic generalization of the short pulse equation that approximates the solutions of nonlinear Maxwell's equations. Numerical simulations show that soliton solutions of the short-pulse equation propagate stably in both deterministic and stochastic nonlinear Maxwell's equations. (Received March 30, 2010)