Stochastic Models in Fiber Optics

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We will describe in this talk mathematical and numerical results concerning stochastic PDEs based on nonlinear Schrödinger equations with a white noise dispersion which models the evolution of the complex envelope of a light beam propagating in an optical fiber, in the presence of so called dispersion management. We will in particular show how the presence of the noise affects the mathematical properties of the model, and show that the conservative Crank-Nicolson scheme gives a better approximation than is usual for the numerical simulation of this stochastic equation.