Weak solutions to the stochastic thin-film equation with nonlinear noise in divergence form

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We investigate a degenerate-parabolic fourth-order stochastic partial differential equation modelling the spreading of thin liquid droplets under the influence of thermal noise. Using a combination of entropy and energy estimates, we are able to control the formation of shocks caused by the nonlinear noise in divergence form. In conjunction with a tailor-made approximation and regularization of the equation, we are thus able to prove existence of weak (martingale) solutions through a sequence of compactness arguments.