
A Smoluchowski-Kramers approximation for the variational wave equation

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Résumé

We consider the damped stochastic variational wave equation with a non-constant friction, we investigate the existence of local-in-time regular solutions, the occurrence of finite-time blow-up, and the existence of global martingale weak solutions. Moreover, we explore the small-mass limit, known as the Smoluchowski-Kramers approximation, proving that the global weak solution converges to the unique solution of a stochastic quasilinear parabolic equation. This is a joint work with Julien Vovelle.

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