

Conference Pathwise Stochastic Analysis and Applications

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**Pathwise regularization
of the stochastic heat equation with multiplicative noise
through irregular perturbation**

Existence and uniqueness of solutions to the stochastic heat equation with multiplicative spatial noise is studied. In the spirit of pathwise regularization by noise, we show that a perturbation by a sufficiently irregular continuous path establish wellposedness of such equations, even when the drift and diffusion coefficients are given as generalized functions or distributions. In addition we prove regularity of the averaged field associated to a Lévy fractional stable motion, and use this as an example of a perturbation regularizing the multiplicative stochastic heat equation.
