
Renormalized nonlinear wave equations with additive white noise

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Résumé

Conceptually renormalized nonlinear wave equations arise as large scale limit of nonlinear wave equations with more regular noise. Without renormalization only trivial limits can be obtained in 2 and 3 dimensions. The renormalization is similar to the one for stochastic parabolic equations.

The problem decomposes into two parts: First the study of white noise and random fields leading to what is called enhanced white noise, followed by a fixed point iteration for wave equations with rough coefficients. This suffices in two space dimensions, but in three dimensions in addition a paraproduct decomposition is used.

Talk 1) Introduction and structure of the results and proofs

Talk 2) White noise and random fields

Talk 3) The fixed point argument and random operators.

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