Academy of Mathematics and Systems Science, CAS
Colloquia & Seminars

Speaker: 金典聪讲师，华中科技大学数学与统计学院

Inviter: 王旭 副研究员

Title: Convergence analysis of one-point large deviations rate functions of numerical methods for stochastic wave equations with small noise

Language: Chinese

Time & Venue: 2023.02.23 19:00-20:00 腾讯会议ID：179-900-698

Abstract:

In this talk, we present the pointwise convergence of one-point large deviations rate functions (LDRFs) of the spatial finite difference method and further the fully discrete method based on the temporal accelerated exponential Euler method for stochastic wave equations with small noise. This kind of convergence analysis is essentially about the asymptotical limit of minimization problems. In order to overcome the difficulty that objective functions associated with the original equation and these numerical methods have different effective domains, we propose a new technical route for analyzing the pointwise convergence of the one-point LDRFs of the numerical methods, building on the Γ-convergence of objective functions. Based on the new technical route, the intractable convergence analysis of one-point LDRFs boils down to the qualitative analysis of skeleton equations of the original equation and its numerical methods.

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