

数学与系统科学研究院

计算数学所博士后定期学术报告

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报告题目:

**A full-discrete exponential Euler
approximation of the invariant
measure for parabolic stochastic
partial differential equations**

报告时间: **2019 年 12 月 25 日 (周三)**

下午 16:00-17:00

报告地点: **科技综合楼三层**

311 报告厅

Abstract:

In this talk we discrete the ergodic semilinear stochastic partial differential equations in space dimension $d \leq 3$ with additive noise, spatially by a spectral Galerkin method and temporally by an exponential Euler scheme. It is shown that both the spatial semi-discretization and the spatio-temporal full discretization are ergodic. Further, convergence orders of the numerical invariant measures, depending on the regularity of noise, are recovered based on an easy time-independent weak error analysis without relying on Malliavin calculus. To be precise, the convergence order is $1-\epsilon$ in space and $\frac{1}{2}-\epsilon$ in time for the space-time white noise case and $2-\epsilon$ in space and $1-\epsilon$ in time for the trace class noise case in space dimension $d = 1$, with arbitrarily small $\epsilon > 0$. Numerical results are finally reported to confirm these theoretical findings.

欢迎大家参加！