北京师范大学随机数学研究中心

学术报告

报告题目：**Stability of rarefaction wave for stochastic Burgers equation**

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摘要

The large time behavior of strong solutions to the stochastic Burgers equation is considered in this paper. It is first shown that the unique global strong solution to the one dimensional stochastic Burgers equation time-asymptotically tend to a rarefaction wave provided that the initial data *u*\_0(*x*) satisfies lim\_{*x*→±∞} *u*\_0(*x*) = *u*± and *u\_* < *u*+, that is, the rarefaction wave is non-linearly stable under white noise perturbation for stochastic Burgers equation. A time-convergence rate is also obtained. Moreover, an important inequality (denoted by Area Inequality) is derived. This inequality plays essential role in the estimates, and may have various applications in the related problems, in particular for the time-decay rate of solutions of both the stochastic and deterministic PDEs. As an application, the stability of planar rarefaction wave is shown stable for a two-dimensional viscous conservation law with stochastic force.

This is joint work with Feimin Huang, Houqi Su.