中国科学院
随机复杂结构与数据科学重点实验室

学术报告

报告题目： Landau-Lifshitz-Navier-Stokes Equations: Large Deviations and Relationship to The Energy Equality

报 告 人： 吴政言 博士 (德国 Bielefeld 大学)

时　　间： 2024 年 2 月 1 日（周四） 16：00 － 17：00

地　　点： 数学院南楼 613

报告摘要： We study a dynamical large deviation principle for global solutions to the three-dimensional Landau-Lifschitz-Navier-Stokes equations with spatially correlated noise, in a scaling regime where the noise intensity and correlation length go to zero simultaneously. Paralleling the classical Leray theory, the solutions are defined globally in time and satisfy a path-by-path energy inequality. We relate classes of solutions on which the large deviations upper and lower bounds match to the deterministic energy equality, generalising the result of Lions-Ladyzhenskaya, and relate potential failure of the energy equality to violations of the large deviations lower bound without restriction. Finally, we consider the large deviations of the local-in-time strong solution, and show that the solution can rapidly lose regularity with negligible large-deviations cost. This is joint work with Benjamin Gess and Daniel Heydecker.