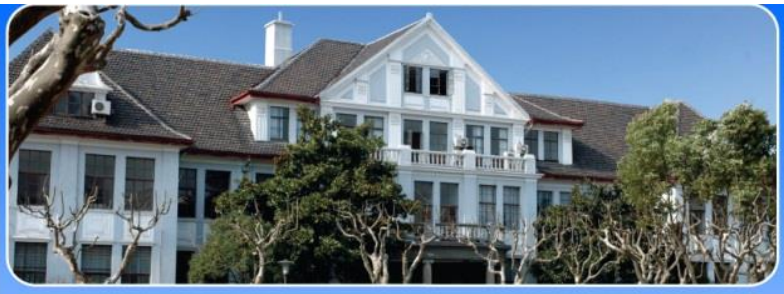


复旦大学数学科学学院
数学综合报告会

报告题目：Stability of Big Bang singularity for the Einstein-Maxwell-scalar field-Vlasov system in the full strong sub-critical regime

报告人：何陶然 博士后 (IHES)

时间：2026-01-08 星期四 14:00-15:00

地点：光华楼东主楼 1403

报告摘要：

In this talk, I will present our recent work on the stability of Kasner solutions for the Einstein-Maxwell-scalar field-Vlasov system in 1+3 dimensions. This system incorporates gravity, electromagnetic, weak and strong interactions for the initial stage of our universe. The inclusion of the Vlasov field introduces several new challenges. By observing detailed mathematical structures and designing new delicate arguments, we identify a new strong sub-critical regime and prove the nonlinear stability with Kasner exponents lying in this entire regime. Our results extend the work of Fournodavlos-Rodnianski-Speck from the Einstein-scalar field system to the physically more complex system with the Vlasov field. This is joint work with Xinliang An and Dawei Shen.

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