



北京理工大学

数学与统计学院学术报告

Quasi-invariance of SLE welding

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时间：2024年9月5日 下午16:00-17:00

地点：文萃楼G124

摘要： When $\kappa \in (0, 4]$, the SLE loop η_{κ} is an important one-parameter family of conformally invariant and conformally removable random Jordan loops with Hausdorff dimension $1 + \kappa/8$. We study the conformal welding of this loop and prove that this random welding measure is mutually absolutely continuous with itself under post-composition and pre-composition by Weil-Petersson quasi-symmetric homeomorphisms, what we call quasi-invariance. In particular, the new welding question still has a unique solution with the same Hausdorff dimension. Weil-Petersson geometry theory of the universal Teichmüller space is an important topic in Teichmüller theory, which is closely related with Loewner energy that also appears in the large deviation principle of SLE. Our result shows the interplay between probability theory and geometry. For the proof, we use the tool from Liouville quantum gravity, more precisely, the normalized boundary Liouville measure which is also quasi-invariant. Moreover, we find some other random conformal welding measures are also quasi-invariant.