

中国科学院数学与系统科学研究院

应用数学研究所

华罗庚应用数学青年论坛

报告题目: **Random Surface, Planar Lattice Model, and Conformal Field Theory**

报告人: 孙鑫 博士

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时 间: 2023 年 3 月 31 日 (星期五) 上午 9:00--10:30

地 点: 腾讯会议 843-467-831

摘 要: Liouville quantum gravity (LQG) is a theory of random surfaces that originated from string theory. Schramm Loewner evolution (SLE) is a family of random planar curves describing scaling limits of many 2D lattice models at their criticality. Before the rigorous study via LQG and SLE in probability, random surfaces and scaling limits of lattice models have been studied via another approach in theoretical physics called conformal field theory (CFT) since the 1980s. In this talk, I will demonstrate how a combination of ideas from LQG/SLE and CFT can be used to rigorously prove several long standing predictions in physics on random surfaces and planar lattice models, including the law of the random modulus of the scaling limit of uniform triangulation of the annular topology, and the crossing formula for critical planar percolation on an annulus. I will then present some conjectures which further illustrate the deep and rich interaction between LQG/SLE and CFT. Based on joint works with Ang, Holden, Remy, Xu, and Zhuang.

个人简介: 毕业于北京大学, 2017 年获麻省理工学院博士学位, 2017 至 2020 年受西蒙斯基金会资助, 2018 至 2021 年获美国国家科学基金会资助, 2020 年获 Bernoulli Society New Researcher Award, 2022 至 2023 年在普林斯顿高等研究院工作。在 Acta Math., Commun. Pure Appl. Math., Commun. Math. Phys., Memoire. Amer. Math. Soc., Probab. Theory Relat. Fields, Ann. Prob.等刊物上发表或被接受论文。