



SCMS Colloquium

EXISTENCE OF APPROXIMATELY MACROSCOPICALLY UNIQUE STATES

Speaker: Huaxin Lin

University of Oregon

Time: Wed, May 15th, 16:00-17:00

Venue: Gu Lecture Hall, SCMS

Reception: 15:30-16:00, 4th floor SCMS



Abstract: In quantum mechanics, macroscopic observables may be represented by self-adjoint operators T_1, T_2, \dots, T_n on a Hilbert space H . Commutators $T_i T_j - T_j T_i$ are related to the uncertainty principle in their measurements.

David Mumford recently proposed to study "Approximately Macroscopically Unique" states. He suggested that when commutators are small there might be many AMU states. In fact, he asked whether one can find a condition so that when commutators are small in norm, these n -tuple self-adjoint operators can be approximated by commuting self-adjoint operators. This talk is an introduction to these problems.

About the speaker: 林华新教授是国际算子代数领域的领袖之一，主要研究 C^* -代数及其分类。林教授在 90 年代解决了矩阵论中长期未决的 Halmos 问题，2000 年以后引入并发展了在 C^* -代数分类中起到核心作用的迹秩理论，独立证明了迹秩有限 C^* -代数的分类定理，首次基于简单抽象结构给出广泛的 C^* -代数分类，推动了整个 C^* -代数理论的发展，2014 年以来，与他人合作完成了 C^* -代数领域中著名的“Elliott 纲领”。林教授是美国数学会首届会士，2005 年获上海市科学技术进步一等奖，被邀请在 1997 年欧盟算子代数大会、2014 年国际数学家大会（ICM）算子代数卫星会议上作大会报告，2015 年受 CBMS、AMS 和 NSF 联合特别邀请作十场系列讲座，2018 年美洲数学家大会作报告。2023 年获得首届国际基础科学大会（ICBS）颁发的前沿科学奖。

