



Weekly Seminar

Non-Hermitian phenomena: new frontiers and challenges

Ching Hua Lee

National University of Singapore



Time: 3:00 pm, Apr.23, 2025 (Wednesday)

时间: 2025年4月23日 (周三) 下午3:00

Venue: Room w563, Physics building, Peking University

地点: 北京大学物理楼, 西563会议室

Abstract

Non-Hermitian phenomena such as the non-Hermitian skin effect (NHSE) and exceptional point sensitivity have no Hermitian analogs, and have lately reshaped the way we understand band structures and topology. In this talk, I shall introduce some new ideas that extend the current repertoire of novel non-Hermitian phenomena, such as system-size dependent generalized Brillouin zones (GBZs), as well as GBZs defined in phase space. I shall also highlight how the NHSE can interplay with the geometric defectiveness of exceptional points to lead to novel exceptional bound bands with super volume-law negative entanglement scaling. Finally, I will also review how non-Hermitian processes have been recently simulated in unitary quantum simulators.

About the speaker

Prof Ching Hua Lee obtained a PhD from Stanford University under the tutelage of Prof Xiaoliang Qi. He joined the National University of Singapore in 2020, and is now heading a team focusing on exploring novel non-Hermitian phenomena, as well as their simulation on classical and quantum circuits. Prof Lee publishes regularly in top scientific journals, and has been cited over 10000 times in the recent years.