

Invited Talk: Zihan Zhou (online) (Title: When black hole perturbation theory meets scattering amplitudes and conformal field theory)

Wednesday, 28 May 2025 10:00 (45 minutes)

Title: When black hole perturbation theory meets scattering amplitudes and conformal field theory

Abstract:

The study of black hole perturbation theory has seen a resurgence in recent years after the observation of the gravitational waves generated by the coalescence of binary black holes. In this talk, I will summarize some of the recent progress in understanding black hole perturbation theory from the aspect of scattering amplitude and conformal field theory (CFT). First of all, I will review the three analytic methods, i.e. Mano-Suzuki-Takasugi (MST), CFT and monodromy methods of solving Teukolsky equations. Then, I will discuss the physics behind the solutions via the gravitational Raman scattering amplitudes and apply them in the waveform resummation.