

Invited Talk: Yeong-Bok Bae (Title: Ringdown Gravitational-Waves from the Close Scattering of Two Black Holes)

Monday, 26 May 2025 16:15 (45 minutes)

Title: Ringdown Gravitational-Waves from the Close Scattering of Two Black Holes

Abstract: In this talk, we present fully general-relativistic simulations showing that two equal-mass, non-spinning black holes on close-scattering hyperbolic trajectories can emit a clear ringdown gravitational-wave signal without merging. This signal arises purely from the dynamical tidal deformations during the close encounter. By analyzing the gravitational radiation after the flyby, we identify oscillatory features whose frequencies match the quasinormal modes of a Schwarzschild black hole to within a few percent. Our results demonstrate that such nonmerging encounters can excite genuine ringdown modes, offering new insights into the dynamics of strong-field gravity beyond the context of black hole mergers.