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Invited Talk: Naritaka Oshita (Title: Excitability, convergence and (in)completeness of quasi-normal modes)

Tuesday, 27 May 2025 16:15 (45 minutes)

Title: Excitability, convergence and (in)completeness of quasi-normal modes

Abstract: After the merger of a binary black hole system, the remnant black hole undergoes free oscillations, emitting gravitational waves known as the ringdown signal.
These ringdown waveforms contain multiple quasi-normal modes (QNMs), and it is expected that black hole spectroscopy—resolving these modes individually—will enable tests of gravity in the strong-field regime.
In this talk, I will explain how the multiple QNMs exhibit a universal and destructive interference pattern characterized by the black hole greybody factor or its S-matrix.
I will also discuss the convergence and (in)completeness of the QNM expansion of ringdown and the potential implications of these findings for testing strong gravity.