

Scattering of Dirac Fields in Black Hole Interiors

mercredi 20 novembre 2024 14:00 (30 minutes)

Scattering problems in black hole interiors are an indispensable tool in the study of strong cosmic censorship. I will present joint work with M. Mokdad where we construct a scattering theory for the massive and charged Dirac field in the interior region of a sub-extremal Kerr-Newman(-anti)-de Sitter black hole. In this work, we show existence, uniqueness, and asymptotic completeness of scattering data for Dirac fields from the event horizon of the black hole to the Cauchy horizon. Our approach relies on constructing the wave operators where the Hamiltonian of the full dynamics is time-dependent. I will also discuss the utility of second-order symmetry operators of the Dirac equation and how their absence in the most general case complicates the analysis.

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