

ICTS Seminar

Title : On Late Time Tails in an Extreme Reissner-Nordström Black Hole: Frequency Domain Analysis

Speaker : Bidisha Chakrabarty, ICTS-TIFR, Bangalore

Date : Friday, August 17, 2018

Time : 11:00 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : In this talk I will discuss leading order late time decay tails of massless scalar perturbations outside an extreme Reissner-Nordström black hole. We analyse the problem in the frequency domain. We first consider initial perturbations with generic regular behaviour across the horizon on characteristic surfaces. For this set-up, we reproduce some of the previous results of Sela using Fourier methods. Next, we consider related initial data on $t=\text{const}$ hypersurfaces, and present decay results at timelike infinity, near future null infinity, and near the future horizon. Along the way, using a special inversion symmetry of the extreme Reissner-Nordström spacetime, we relate the higher multipole Aretakis and Newman-Penrose constants for a massless scalar in this background.

Link: <https://arxiv.org/abs/1805.10655>