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Joint Geometric Analysis Seminar

(Part of MIST program)

Wave equations on Blackholes

Dr. Jingbo Wan
Columbia University

Abstract

In this talk, I will review the vector field method/Energy method towards scalar wave equations on Schwarzschild or Kerr spacetime. To do so, we will emphasize some geometric/physical phenomena of Schwarzschild and Kerr involving the ergoregion, the photon sphere and also the Red-shift effect. Remarkably, these phenomena represent either obstructions or stabilizing mechanism for decay estimates of the wave equations. During the Energy estimate of wave equations, I intend to explain which phenomenon causes what obstruction and which phenomenon can help us fix some of the obstructions. At the end, I will also try to explain why the study of scalar wave equations is an essential step towards the (non-)linear stability of Blackholes.

Date: **June 2, 2023 (Friday)**
Time: **10:30am-11:30am**
Venue: **AB1 502a (in-person)**

All are Welcome