SEMPARIS – Séminaires en région parisienne

http ://string.lpthe.jussieu.fr/semparis/

Seminar of the theory group of APC

Mardi 24 Mai 2022, 13 :30
APC, contact roperpol@apc.in2p3.fr for Zoom meeting details
Domaines : gr-qc

Titre : *Black hole perturbations in higher-order scalar-tensor theories : initial value problem and dynamical stability*

Orateur : **Keisuke Nakashi (Kochi College)**

Résumé : *We propose a physically sensitive formulation of initial value problem for black hole perturbations in higher-order scalar-tensor theories. As a first application, we study monopole perturbations around stealth Schwarzschild solutions in a shift- and reflection-symmetric subclass of DHOST theories. In particular, we investigate the time evolution of the monopole perturbations by solving a two-dimensional wave equation and analyze the Vishveshwara's classical scattering experiment, ie, the time evolution of a Gaussian wave packet. As a result, we confirm that stealth Schwarzschild solutions in the DHOST theory are dynamically stable against the monopole perturbations with the wavelength comparable or shorter than the size of the black hole horizon. We also find that the damped oscillations at the late time do not show up unlike the ringdown phase in the standard case of general relativity. This talk is based on our recent paper, 2204.05054 [gr-qc].*