

III Amazonian Symposium on Physics and
V NRHEP Network Meeting:
Celebrating 100 Years of General Relativity
28th September - 2nd October 2015
Federal University of Pará



Testing black hole superradiance with pulsar companions

João Pedro Trancoso Gomes Rosa

Universidade de Aveiro, Portugal

I will discuss the occurrence of superradiant scattering in binary systems with a neutron star orbiting a rotating black hole, where both the gravitational and magnetic dipole radiation emitted by the former may be amplified by the latter. I will describe the orbital configurations where amplification occurs and the luminosity modulation that results from alternate superradiant amplification and attenuation of the pulsar's radiation as it orbits the black hole. Finally, I will discuss some of the challenges in observing this effect and the possibility of using it to test general relativity in the regime of compact astrophysical objects.