## 20th Capra Meeting on Radiation Reaction in General Relativity



Contribution ID : 19

Type : not specified

## Self-force on a scalar charge in circular orbits about a Reissner-Nordstr\"{o}m black hole

Tuesday, 20 June 2017 16:30 (25)

We calculate the self-force exerted on a scalar charge in a circular orbit about a Reissner-Nordstr\"{o}m black hole via mode-sum regularization. We also compute the radiative fluxes towards infinity and down the black hole. We pay particular attention to the dependence of the self-force and radiative fluxes on the black hole's charge-to-mass ratio, the controlling parameter of the Reissner-Nordstr\"{o}m geometry. We find that as the black hole approaches extremality, the radiative fluxes, and the self-force decreases.

**Primary author(s) :** Mr. CASTILLO, Jezreel (National Institute of Physics, University of the Philippines Diliman)

**Co-author(s) :** Mr. WARDELL, Barry (School of Mathematics and Statistics and Complex & Adaptive Systems Laboratory, University College Dublin); Mr. VEGA, Ian (National Institute of Physics, University of the Philippines Diliman)

Presenter(s): Mr. CASTILLO, Jezreel (National Institute of Physics, University of the Philippines Diliman)