

Spanish and Portuguese Relativity Meeting



Contribution ID: 31

Type: **not specified**

Radiation reaction in magnetized black holes: can the tail term be ignored?

Monday 22 July 2024 16:45 (15 minutes)

We study radiation from charged particles in circular motion around a Schwarzschild black hole immersed in an asymptotically uniform magnetic field. In curved space, the radiation reaction force is described by the DeWitt-Brehme equation, which includes a complicated, non-local tail term. We studied this system in the weak field regime, where the tail term can be treated directly, and in the strong field regime, using black hole perturbation theory. Our results show that, contrary to some claims in the literature, the tail term cannot be neglected. We also report a surprising “horizon dominance effect”.

Primary authors: Prof. NATÁRIO, José (Instituto Superior Técnico, CAMGSD); SIEIRO DOS SANTOS, João (Instituto Superior Técnico, CENTRA); Prof. CARDOSO, Vítor (Instituto Superior Técnico, CENTRA ; Niels Bohr Institute)

Presenter: SIEIRO DOS SANTOS, João (Instituto Superior Técnico, CENTRA)

Session Classification: Parallel session 4 (Black Holes I)