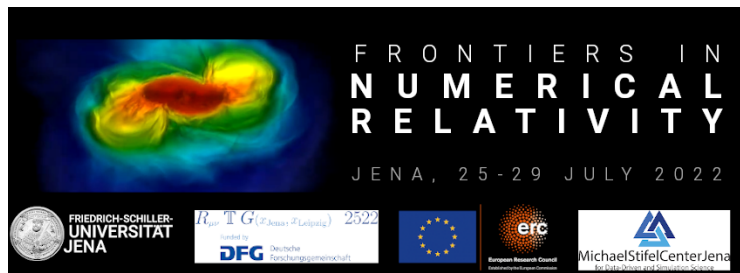


Frontiers in Numerical Relativity 2022 (FNR2022)



Contribution ID: 63

Type: **not specified**

The piercing of a boson star by a black hole

Thursday, 28 July 2022 18:30 (15 minutes)

New light fundamental fields are natural candidates for all or a fraction of dark matter. Self-gravitating structures of such fields might be common objects in the universe, and could comprise even galactic haloes. These structures would interact gravitationally with black holes, process of the utmost importance, since it dictates their lifetime, the black hole motion and possible gravitational radiation emission. I will present a study on the dynamics of a black hole piercing through a much larger fully relativistic boson star, made of a complex minimally coupled massive scalar without self-interactions. As the black hole pierces through the bosonic structure, it is slowed down by accretion and dynamical friction, giving rise to gravitational wave emission. We find evidence of a “gravitational atom” left behind as a product of the process.

Presenter: Dr ZILHAO, Miguel (Universidade de Aveiro)

Session Classification: Short talks