

David Abarca - Radiative GRMHD simulations of accretion onto neutron stars

Thursday, 13 June 2019 14:20 (20 minutes)

We simulate accretion at super-critical rates onto magnetized and non-magnetized neutron stars to investigate the properties of matter flow in the vicinity of ULX pulsars. We show first results of a newly implemented method to simulate a well behaved magnetosphere. We explore the case of channeled accretion along magnetic field lines leading to the formation of accretion columns and the radiative luminosity from the magnetically confined plasma. We also demonstrate that high rates of accretion alone onto a non-magnetized neutron star are insufficient to produce super-Eddington luminosity.

Primary author: ABARCA, David (CAMK PAN)

Co-authors: KLUZNIAK, Wlodek (Nicolaus Copernicus Astronomical Center); Dr PARFREY, Kyle