Contribution ID: **39** Type: **Poster**

Thin accretion disc in strong gravity influenced by interaction with radiation field

Accretion structures in the vicinity of neutron stars are significantly influenced by the radiation emitted from the surface of stars and from the boundary layer. Apart from the radiation pressure, the accreted matter is also affected by the Poynting-Robertson effect, which causes angular momentum loss and therefore acts as an additional source of viscosity in the disk. Using numerical simulations, we studied the influence of the Poynting-Robertson effect on the thin accretion disks in accreting binary systems with a neutron star. In the parallelized simulation code, we implement the complete general relativistic description of the Poynting-Robertson effect. The motion of matter in the disk thus results from a complex interplay of strong gravitational field, the Poynting –Robertson effect, radiation pressure and disk viscosity. The results demonstrate that the presence of even constant star's luminosity qualitatively influences the distribution of mass density in thin disks and can create strong inhomogeneous structures of the disk.

Authors: LANČOVA, Debora; Dr BAKALA, Pavel (Silesian University in Opava); GOLUCHOVA, Katerina; Prof. FALANGA, Maurizio (ISSI Bern); Mr DE FALCO, Vittorio; Prof. STELLA, Luigi (INAF Roma)

Presenter: LANČOVA, Debora

Session Classification: Poster session