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Vibrating ring around black hole

Friday, 12 July 2024 17:00 (30 minutes)

A thin circular structure vibrating in the central plane of a black hole will be investigated. This circular ring (string loop) can be considered a simplified model for thin magnetic flux tubes (in plasma physics), and connections to accreting fluid structures around the black hole will be demonstrated. The stability of the string loop and the frequencies of its vibrational modes will be provided and compared with the vibrational modes of thick toroidal fluid structure around black holes, which is the standard analytical model for the temporal properties of accretion flow.

Primary author: KOLOŠ, Martin (Institute of Physics, Silesian University in Opava)

Presenter: KOLOŠ, Martin (Institute of Physics, Silesian University in Opava)

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