
Simulating the connection between the large and event-horizon scales of the accretion flow onto Sgr A*

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Abstract

Comparing horizon-scale observations of Sgr A* and M 87* with libraries of numerical simulations has provided considerable insight into their interpretation. However, most of these simulations are variations of the same physical scenario, which consists of a rotation-supported torus seeded with poloidal magnetic fields. This approach faces several challenges, one of the most important being the fact that those models of Sgr A* that are able to fit a set of stringent multi-wavelength constraints fail to reproduce its observed variability. Moreover, these simulations show significant differences with respect to the predictions of simulated accretion fed by stellar winds onto this source. In this talk, we will discuss the exploration of accretion patterns beyond typical tori through numerical simulations, and present some attempts to produce simulation setups at event-horizon scales that can incrementally incorporate information from the larger scale accretion flow.

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