Contribution ID: **34** Type: **Contribution talk**

Unveiling accretion flows around our galaxy's supermassive black hole

Friday, 18 October 2024 11:55 (15 minutes)

There are ample ambiguities in the theoretical modeling of accretion flow around Sgr A.*The theory and observations can not confirm the nature of the accretion flow around the central supermassive black hole. In this talk, we investigate the possible application of low-angular momentum flow for the same. We focus on the role of angular momentum in determining the properties of accretion flows around Kerr black holes. Utilizing numerical simulations employing general relativistic magnetohydrodynamics (GRMHD), we explore how different angular momentum profiles influence the flow dynamics. Finally, we propose that intermediate angular momentum flows offer some insights into the complexities observed in the supermassive black hole Sgr A*, which requires more study. We also discuss other accretion possibilities around Sgr A* and compare them together.

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Session Classification: Session