

Massive and Intermediate Mass Black Holes as Revealed by LISA: How Gravitational Wave Astronomy Will be a Game Changer

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Abstract: Astronomers now know that massive black holes are in nearly every galaxy. Though these black holes are an observational certainty, nearly every aspect of their evolution -- from their birth, to their fuel source, to their basic dynamics -- is a matter of lively debate. Fortunately, LISA, a space-based gravitational wave observatory set to launch in 2035, will revolutionize this field by providing data that is complementary to electromagnetic observations as well as data in regimes that are electromagnetically dark. This talk is intended to be a highly interactive discussion of the LISA mission and its science goals. In particular, we'll focus on our current understanding of how MBHs form, evolve, and alter their galaxy host, and will outline the theoretical, computational and observational work needed to make the most of LISA observations.