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Dark Candles of the Universe: Black Hole Observations¹

AYCIN AYKUTALP, Georgia Institute of Technology

In 1916, when Karl Schwarzschild solved the Einstein field equations of general relativity for a spherically symmetric, non-rotating mass no one anticipated the impact black holes would have on astrophysics. I will review the main formation channels for black hole seeds and their evolution through cosmic time. In this, emphasis will be placed on the observational diagnostics of astrophysical black holes and their role on the assembly of galaxy formation and evolution. I then review how these observations put constrain on the seed black hole formation theories. Finally, I present an outlook for how future observations can shed light on our understanding of black holes.

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