

Reviewing the GR method for estimating black hole parameters of megamaser systems.

We review a General Relativistic (GR) method to determine the black hole (BH) parameters: mass-to-distance ratio, position and recessional velocity of 16 active galactic nuclei (AGNs) of Seyfert type, which have an accretion disk with water masers circulating around the BH. This GR method makes use of astrophysical observations: the redshifted and the blueshifted photons emitted from the aforementioned masers and their orbital position on the sky. In order to perform the estimations we implement a Bayesian statistical method to fit the above mentioned observational data. One of the main results of this work consists in analytically expressing the gravitational redshift, allowing us to quantify its magnitude for the photons emitted by the closest masers to the black holes. We computed this quantity for several BHs hosted at the core of AGNs.

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