

X-ray search for intermediate-mass black holes

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Two distinct environments are the best searching ground for active (X-ray bright) intermediate mass black holes (IMBHs): the nuclei of late-type disk galaxies and the outskirts of spheroidal or elliptical galaxies. i) In late-type spirals, the identification of candidate IMBH host galaxies is based on scaling relations (M -sigma relation, M_{star} - M_{BH} relation, pitch angle), and point-like X-ray detections confirm or at least suggest the presence of a compact object in the galactic nucleus. I give an example of such candidates we have identified in the Virgo Cluster. ii) Off-nuclear IMBHs may be the result of satellite accretion during the assembly of a galactic halo. Focusing the X-ray search on elliptical/spheroidal galaxies reduces the possibility of confusion with stellar-mass super-Eddington sources (ultraluminous X-ray sources), which are more often associated with young stellar populations. Here, the identification of candidate IMBHs is based on their soft, thermal (disk-blackbody) X-ray spectrum with peak temperatures $T_{\text{in}} \sim 0.2\text{-}0.4$ keV at a luminosity $L_X \sim 1\text{E}41\text{-}1\text{E}42$ erg/s. I will give an example of the two best candidates identified so far through this method.

Topic

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