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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_{in} ˜ 0.2-0.4 keV at a luminosity L_X ˜ 1E41-1E42 erg/s. I will give an example of the two best candidates identified so far through this method.

Topic

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