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News & Comments

Hubble Detects a Free-Floating Black Hole Over the Milky Way

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An international team of astronomers has discovered a free-floating black hole in the Milky Way galaxy by using gravitational microlensing. For the first time, astronomers observed the brightening of a distant star as its light was distorted by the gravitational field of a black hole.

The object is either a neutron star or a black hole. Therefore, it has been dubbed a stellar ghost by the team. It has a mass between 1.6 and 4.4 times that of the sun.

Similar microlensing events were studied by Baltimore's Space Telescope Science Institute (STScI). According to the paper, the compact object is unmistakably a black hole since its mass is closer to 7.1 solar masses.

According to additional Hubble data, scientists are still able to observe the star's position changing ten years after the lens's gravitational field caused it to move.

OB110462 is likely to be a black hole or neutron star based on the analysis of the new data. Objects in the foreground and background move at different rates, leading to different conclusions.

Both teams perform different astrometric analyses. There is no way to distinguish between a black hole and a neutron star yet, according to a UC Berkeley-led team. The discrepancy can still be resolved with more Hubble data and improved analyses in the future.

KEYWORDS

Astrophysics of Galaxies, Solar and Stellar Astrophysics, black holes, gravitational microlensing, neutron stars, milky way, gravitation, photometry, space telescopes, astrometry, ESA, Hubbe, NASA, star, OB110462, stellar-mass black hole