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The Galactic Center: The Nearest Laboratory for Studying Supermassive Black Holes

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Because of its proximity the Center of the Milky Way is a unique laboratory for studying supermassive black holes. Measurements of stellar velocities and partial orbits from speckle interferometric and adaptive optics imaging in the period 1992 - 2003 have established a compelling case that this dark mass concentration is a massive black hole of about 3 to 4 Million solar masses. Since then several spectacular results have emerged from the latest generation of instruments and telescopes: The discovery, time resolved photometry, and spectral characterisation of infrared emission from the flaring black hole give insight to the physical properties just a few light minutes from the event horizon. The spectral classification of about a dozen stars in the central few light weeks reveals the paradox of youth of the stellar population. And the measurement of the radial velocities for these stars allows a full three dimensional characterisation of the orbits, as well as a geometric determination of the distance to the Center of our Galaxy.