

Abstract Submitted
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The black hole and gas disk in NGC 4552 PETER KIRCHER, JASON PINKNEY, Ohio Northern University — We present kinematics and photometry of the Elliptical galaxy NGC 4552. This is part of a program to directly measure the masses of supermassive black holes in galaxies. Our photometry is derived from V and I band CCD images from the ground and from the Hubble Space Telescope (HST). We find that fitting the 2D surface brightness distribution with parametric Sersic models does not match the light profile as well as standard ellipse fitting. The combined (HST+ground) light profile is used to find the enclosed mass profile of the galaxy. The stellar line of sight velocity distribution is measured from CaII absorption lines at 8498, 8542, and 8662 Å in ground-based long-slit spectroscopy. The stellar velocity dispersion is about 300 km/s, which predicts a black hole mass of about $7 \times 10^8 M_{Sun}$. Our HST spectra of the H α -emitting ionized gas shows ordered motion and hints of a Keplerian rotation curve. We model the system as a thin, inclined disk of gas rotating in the galaxy + black hole potential. The measured gas kinematics are best reproduced by models which include a large, central black hole mass.

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