Abstract Submitted
for the OSF09 Meeting of
The American Physical Society

The Gas and Stellar Kinematics of 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 measure 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 $7 \times 10^8 M_{mdot}$. Our ground-based long-slit spectra reveal Hα-emitting ionized gas with a large dispersion and slight rotation. Our HST spectra show that the rotation is more well-ordered at small radii than at large radii, suggesting that a gas disk model can be used to determine a black hole mass. However, HST imaging shows that the subtle dust (which usually follows the gas) is not quite settled into a disk.

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Date submitted: 18 Sep 2009 Electronic form version 1.4