

Abstract Submitted
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H₂O Megamasers: Measuring the Mass of the Black Hole in the AGN of Mrk1210¹ STEPHEN CLOUSE, Brigham Young University, JAMES BRAATZ, National Radio Astronomy Observatory, CHENG-YU KUO, University of Virginia — We present a map of the water maser emission from the nucleus of the Seyfert 2 galaxy Mrk 1210, as observed with the Very Long Baseline Array. The map shows that the masers span ~ 6 mas (0.8 pc). We detect redshifted and blueshifted components offset by ~ 250 km/s but detect no masers directly at the systemic recession velocity of the galaxy. The spectral profile of the maser in Mrk 1210 is somewhat unlike the characteristic triple-peaked profiles of classic water megamasers in Active Galactic Nuclei accretion disks. However, our map shows that the masers are aligned roughly perpendicular to extended radio continuum structures in the nucleus, suggesting the masers come from the accretion disk. We find that we can fit the maser distribution with a flat, inclined disk, with two of the maser loci falling near the midline of the disk and a third coming from an azimuthal angle of 47 degrees on the near side of the disk. We analyzed archival GBT spectra of this galaxy to measure line-of-sight accelerations of the maser lines, and we find them all to have accelerations less than .25 km/s/yr, which is consistent with the flat disk model. With this scenario, we can estimate the mass of the central black hole to be approximately 1.3×10^7 M.

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Stephen Clouse
Brigham Young University

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