

R22a      **Supermassive Black Hole Mass Estimation using Molecular Gas Dynamics**

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Recent mm/submm interferometers have accomplished enough angular resolution and sensitivity to study the mass distribution in the galaxy using molecular gas dynamics. We have developed a new method to derive supermassive black hole (SMBH) mass by using molecular gas dynamics (Davis et al. 2013, Onishi et al. 2015, etc.). Unlike other direct SMBH mass measurement techniques, molecular gas kinematics is applicable to all galaxy types. This relatively new method will bring large sample that allows detailed studies of the M-sigma relation, and will eventually shed light on the co-evolution of galaxies and SMBHs. We present a couple of examples for SMBH mass estimation using molecular gas dynamics observed with mm/submm interferometers, including ALMA.