

Abstract Submitted
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Prospects for Observing Gravitational Lensing by Supermassive Black Holes in Galaxy Cores JUDD BOWMAN, Massachusetts Institute of Technology — The properties of supermassive black holes (SMBHs) in galaxy cores have emerged as important probes into understanding the history of galaxy and structure formation in the universe. Detecting SMBHs, however, is difficult and has been achieved typically using stellar kinematics in the very central regions of galaxies. Strong galaxy-galaxy gravitational lensing offers a compelling mechanism to discover new SMBHs and explore the relationships between the properties of SMBHs and their host galaxies at cosmologically significant redshifts. The presence of an SMBH in a galaxy core is predicted to produce two primary observable effects depending on the lens configuration, either blocking an otherwise predicted image of the background galaxy, or adding an extra, highly demagnified image. Examination of these gravitational lenses under proper circumstances may yield the mass of the SMBH, information on the inner mass-density profile of the host galaxy, and the total mass of the galaxy simultaneously. A serious observational campaign to detect and study these faint images should be practical when the next generation of radio telescope technology is operational.

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