

Abstract Submitted  
for the SES11 Meeting of  
The American Physical Society

**A statistical analysis of the environments of extragalactic water masers**<sup>1</sup> THOMAS REDPATH, James Madison University, ANCA CONSTANTIN, NATHAN DIDOMENICO, JAMES CORCORAN — Water megamasers provide crucial tools for accurate determinations of masses of black holes lurking in galaxy centers, and of extragalactic distances without the need for indirect cosmological assumptions. Current searches have detected masers in only 3 – 4% of the galaxies surveyed and require refinement of their survey criteria. Motivated by current models linking galaxy environment and black hole accretion and the possibility that maser activity correlates with black hole accretion, we undertook a study of the properties of the small-scale environments of galaxies hosting masers. Using samples of maser detections and non-detections provided by the Megamaser Cosmology Project together with SDSS DR7 photometric and spectroscopic observations we performed a comparative analysis of near-neighbor statistics that include distances to first and third neighbors, neighbor counts and color distributions for both flux and absolute magnitude limited volumes. We present results that provide potential constraints for maser surveys, which may increase their detection rate.

<sup>1</sup>This research is supported by the Thomas F. Jeffress and Kat Miller Jeffress Memorial Trust.

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Date submitted: 24 Aug 2011

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