

Abstract Submitted
for the SES16 Meeting of
The American Physical Society

Submillimeter water megamasers in nearby AGNs DOMINIC PESCE, Univ of Virginia, JAMES BRAATZ, VIOLETTE IMPELLIZZERI, NRAO, MEGAMASER COSMOLOGY PROJECT TEAM — Water megamasers at 22 GHz (1.3 cm) have been detected in the nuclei of about 150 galaxies, where they are observed to arise from either the parsec-scale accretion disk or gas outflows associated with the AGN. Now, with the sensitivity and spatial resolution of ALMA, detailed studies of *submillimeter*-wavelength water megamasers in AGNs are possible for the first time. Observations of these megamasers will complement and expand on the rich observations of 22 GHz systems that have, until now, provided the only means to map molecular gas in AGNs directly on sub-parsec scales. Recent detections of 321 GHz megamaser activity in several nearby AGNs have shown that the sub-mm masers are tentatively associated with the circumnuclear accretion disk, and in at least one case (that of the Circinus galaxy) they may also trace the accretion disk at radii interior to their 22 GHz counterparts. Future long-baseline observations of this maser system will spatially resolve the maser distribution. If they can be widely detected, observations of these and other submillimeter lines will greatly increase the power of megamasers to measure black hole masses, distances, and physical conditions in accretion disks.

Dominic Pesce
Univ of Virginia

Date submitted: 07 Oct 2016

Electronic form version 1.4