

**MILLIMETER SYNCHROTRON EMISSION FROM AGN
CORONAE:
A NEW PROBE OF STRONG GRAVITY**

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ABSTRACT

The detection of high-energy neutrinos from the radio-quiet Seyfert galaxy NGC 1068 challenges the paradigm that extreme particle acceleration in active galaxies requires powerful relativistic jets. In radioquiet AGNs, the most compact and energetic region is the hot X-ray corona above the accretion disk, located within only a few gravitational radii of the supermassive black hole. While X-rays trace thermal Comptonization in this plasma, I will show using ALMA polarimetric and variability observations that the compact millimeter emission is synchrotron radiation produced in the same magnetized corona. The tight mm-X-ray connection, combined with the lower optical depth and minimal absorption at mm wavelengths, makes the mm band a uniquely penetrative probe of magnetic fields and non-thermal particle populations in the strong-gravity regime, offering a more direct view of the accretion-powered plasma than X-rays alone. The measured spectral slopes, variability, and polarization constrain the size, magnetic field strength, and particle content of the corona, providing physically motivated limits on hadronic acceleration. I will argue that magnetized coronae in radio-quiet AGNs may represent a previously unrecognized class of steady neutrino sources, and that coordinated mm, X-ray, optical, and neutrino observations with facilities such as IceCube and KM3NeT will enable a coherent multi-messenger view of particle acceleration in the immediate vicinity of supermassive black holes.