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Milliarcsecond Observations of Microarcsecond AGN

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Abstract. We report on a multi-wavelength program to examine the core structure of extremely compact AGN and to search for indications of an intergalactic medium. We have conducted Very Long Baseline Array (VLBA) observations of 58 compact extragalactic sources. Approximately 75% of these objects display interstellar scintillation, in the form of intraday variability, indicative of extremely compact structure ($\sim 10 \mu\text{arcsec}$).

We confirm earlier, single-wavelength observations that found scintillating sources to be more core-dominated than non-scintillating sources [Ojha et al. (2004: ApJ, 614, 607)], consistent with expectations from their scintillation. However, scintillating and non-scintillating sources display comparable levels of radio-wave scattering ($\sim 2 \text{ mas}$ at 1 GHz). We also have redshifts for 63% of the sources and find no trend of scattering strength with redshift. We use these observations to place limits on the level of turbulence that the ionized intergalactic medium can support.

Work in progress includes expanding the number of sources for which redshifts have been measured.

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