

## Probing the Faraday screen in the nuclear region of 3C84

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We present the result of the multi-frequency polarimetric observations to explore the environment of 3C 84 in the center of giant elliptical galaxy NGC 1275. We used the Korea VLBI Network (KVN) at 22, 43, 86, and 129 GHz as part of our Plasma-physics of Active Galactic Nuclei (PAGaN) project and Very Long Baseline Array (VLBA) archival data at 43 GHz. At the VLBI core, the linear polarization is extremely weak whereas it is relatively strong at a hotspot in the jet. By using the 256 MHz bandwidth of VLBA at 43 GHz, we detected the rotation measure (RM) at the core. Surprisingly, the core shows both positive and negative RM and its absolute value is lower than the expectation. This is inconsistent with previous results from the Submillimeter Array (SMA) and the Combined Array for Research in Millimeter wavelength Astronomy (CARMA) observation at 220 and 340 GHz whose RM were always positive. To explain this, we suggest two possible scenarios. One is that EVPA rotations are saturated because the Faraday screen is internal to the jet. The other one is that the Faraday screen is hot accretion flow. To probe the origin of the Faraday rotation at the core, we proposed KVN observation at 86, 90, 94, 129, 138, and 144 GHz.