

Abstract Submitted
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New Arecibo-DRAO deep probe of magnetized plasma in a supercluster environment¹ PHILIPP KRONBERG, Los Alamos National Laboratory, ROLAND KOTHES, NRC Canada, University of Calgary, CHRISTOPHER SALTER, PHIL PERILLAT, Cornell-NAIC Arecibo Observatory, LANL-ARECIBO-DRAO TEAM — Using the first combination of the world's largest radio telescope at Arecibo, and the precision-imaging DRAO Interferometer at Penticton BC, we present a deep, wide field (over 50 sq. degrees) search for faint, 0.4 GHz synchrotron emission at unprecedented low surface brightness levels on scales from 3' to 8 degrees. I describe several new results that emerge: (1) A 2 - 3 Mpc - sized zone of intergalactic magnetized plasma is magnetized at levels $B > 0.1$ microgauss, (2) A striking lack of global correlation between zones of faint synchrotron radiation and baryonic matter (i.e. star & galaxy) overdensity in the local universe, (3) supporting evidence for magnetic and CR energy release from massive galaxy black holes into wider intergalactic space, (4) the first detailed view of foreground Galactic and extragalactic features that might contribute to CMB backgrounds on scales to be imaged by the PLANCK CMB explorer, and (5) constraints on the distributed acceleration and diffusion of CR's in intergalactic space.

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