

Radio Galaxies as Large-Scale Cosmological Probes

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ABSTRACT. We are working on an all-sky sample of radio-selected elliptical galaxies to provide a powerful probe of clustering & streaming velocities on 10–100 Mpc scales. Our eventual sample will have the limits (i) $S > 0.5$ Jy at 1.4 GHz; (ii) $0.01 < z < 0.1$; (iii) $|b_l| > 15^\circ$; about 400 galaxies satisfy these criteria. We are pursuing an optical programme to obtain (i) B & I CCD frames for all galaxies; (ii) spectra for the galaxies without accurate redshifts; this is now about 30% complete. Accurate optical luminosity indicators exist for radio galaxies, without needing to measure velocity dispersions (using the correlations with optical core radius and radio central-component luminosity: Hoessel 1980: *Ap. J.* 241, 493; Fabbiano et al. 1984: *Ap. J.* 277, 115). We therefore expect to provide an accurate test of the Rubin–Ford effect, and to extend such studies to higher redshift. We also have a preliminary result for the 3D two-point correlation function of radio galaxies (see Figure). This strong clustering signal is seen only from galaxies in the decade of radio power below the Fanaroff–Riley division. These objects are known a priori to lie in cluster environments of average Abell richness 0 (Longair & Seldner 1979: *MNRAS* 189, 433). This result therefore provides confirmation of a trend of clustering with richness independent of optical selection effects in choosing a cluster sample.

