Radio Galaxies as Large-Scale Cosmological Probes

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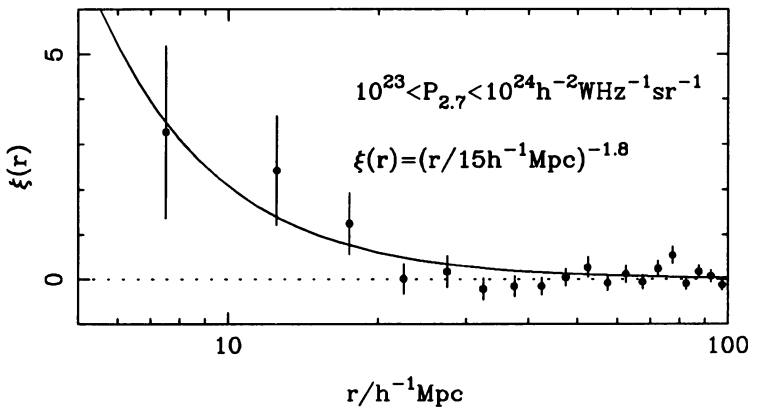
ABSTRACT. We are working on an all-sky sample of radio-selected elliptical galaxies to provide a powerful probe of clustering & streaming velocities on 10-100 Mpc scales. Our eventual sample will have the limits (i) $S>0.5$ Jy at 1.4 GHz; (ii) $0.01<z<0.1$; (iii) $|b|>15^{\circ}$; about 400 galaxies 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.



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