TYPICAL SCALES IN DISTRIBUTION OF IRAS GALAXIES

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Typical scales in the distribution of IRAS galaxies have been searched for with the unnormalized pair count method given by Mo et al.[1]. Samples consist of a) galaxies from QDOT with $| b | \geq 20^o$; b) galaxies from the IRAS faint source catalog(FSC) with $f_{60} \geq 0.3$ Jy and $| b | \geq 30^o$. Galaxies with $b \geq 0$ and $b \leq 0$ were treated as independent samples in our analysis.

Both a 2D and 3D analysis for sample a), and a 2D analysis for sample b) have been made. Combining the unnormalized pair count method with a power spectrum analysis we can find statistically significant typical scales in the distribution of IRAS galaxies. Typical scales of ~ 30, 60 and 120 h^{-1}Mpc have been found from the 3D analyses. And, the same scales are found in the 2D analysis, if we take into account the typical depth of the samples, which can be obtained from the luminosity function of IRAS galaxies.

Typical scales found from the analysis of IRAS galaxies are consistent with those from optical galaxies and clusters of galaxies (Mo et al., 1992). This provide new evidence for the existence of typical scales in the large scale structures, and shows that optical and infrared galaxies may have a similar environment at large scales even though their correlation function at smaller scales is significantly different. Comparing the typical scales at high and low redshifts may provide us with information on the possible value of the cosmological parameter q_o[2,3].

References

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