CROSS-CORRELATION ANALYSIS OF GALAXIES WITH DIFFERENT LUMINOSITY

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In the former work (Xia, Deng and Zhou, 1986), we have showed by two-point correlation analysis that more luminous galaxies cluster stronger. Now we present the result of cross-correlation analysis for galaxies with different luminosity. This analysis supplies information about the relations between the distributions of galaxies with different luminosity. The analyses are based on the data given by CfA survey and have made the same corrections as in the former work. The samples are divided into three subgroups in absolute magnitude ranges: a) -21--22, b) -20--21 and c)-19--20. We make the cross-correlation analysis for each two subgroups. Fig. 1 gives the obtained cross-correlation function $\xi_c(r)$ and Fig. 2 shows the log $\xi_c(r)$-log r diagram, the straight lines in Fig. 2 are given by linear regression. These results show that the two brightest subgroups have the strongest correlation. Combining with the results of former work, it follows that the probability of two brighter galaxies being close to each other is larger than that of fainter galaxies.

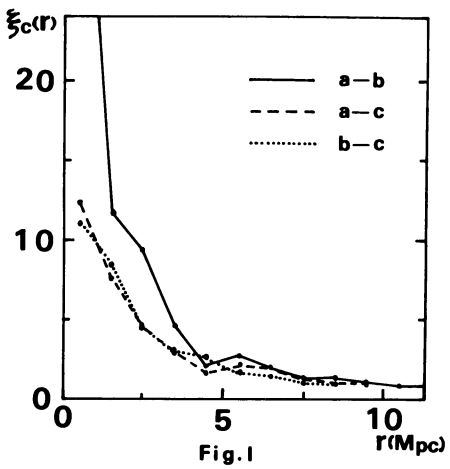

Fig.1

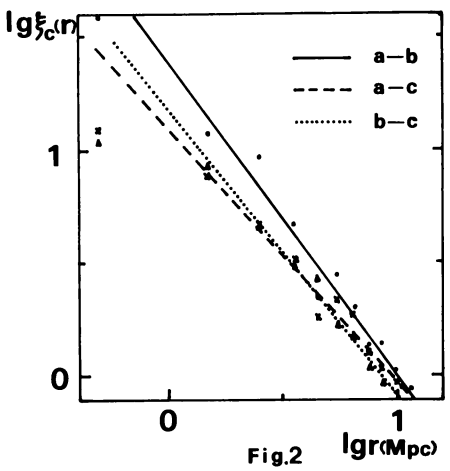

Fig.2

Xia, X.-Y., Deng, Z.-G., and Zhou, Y.-Y., 1986, Proc. IAU Symp. No. 124, p. 647 (D. Reidel Pub. Co., Holland)

J. Audouze et al. (eds.), Large Scale Structures of the Universe, 554.