A NEW CATALOG OF SUPERCLUSTERS OF GALAXIES

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A technique developed by us for searching for superclusters of galaxies (Kalinkov and Kuneva, 1985, 1986) has been applied to the both main catalogs of clusters of galaxies, as well as to some subcatalogs:

(i) all Abell (1958) clusters,
(ii) rich A-clusters (RG > 0),
(iii) very rich A-clusters (RG > 1),
(iv) X-ray A-clusters,
(v) Zwicky et al. (1961-1968) clusters,
(vi) A-clusters, identified in the Zwicky catalog.

All examined samples are comperatively complete to various depth. We used about 700 A-clusters (Kalinkov and Kuneva, 1987) and 450 Z-clusters with known redshifts. For the rest clusters different redshift estimators are utilized.

For the six samples we have cataloged all doublets and multiplets having spatial density enhancements $DS/\overline{D} > 10, 20, 50, 100, 200, 500, 1000$. $\overline{D}$ is the mean density for the corresponding sample.

Examples. A2632, A2646 and A2658, at distance R = 560 Mpc (H_o = 100, $\overline{q = 1}$), is the most compact triplet among RG 3 A-clusters. With radius r = 21 Mpc, $DS/\overline{D} > 640$. A doublet among RG 3 clusters is A1957 + A1961 with distance between the components Δ = 27 Mpc.

A1661, A1667 and A1679 with R = 500 Mpc is probably the most compact triplet among RG 2 clusters; r = 16 Mpc and $DS/\overline{D} > 890$. Some doublets among RG 2 clusters are A1186 + A1412, Δ = 10 Mpc; A1920 + A1937, Δ = 14 Mpc; A1035 + A1190, Δ = 16 Mpc; A2151 + A2199(!!), Δ=22Mpc.

An important conclusion is that the superclustering effect is most strongly expressed in sample (vi) and more weakly in sample (ii), followed by (i), (iii), (v) and (iv).

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