POSSIBLE SUPERCLUSTER AT $Z \sim 0.25$ TOWARDS THE SOUTH GALACTIC POLE

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We have observed a $0.7 \times 1.2 \deg^2$ field in the SGP region with the UT / NAOJ Mosaic CCD Camera attached to the 40-inch Swope Telescope at Las Campanas Observatory, and constructed a sample of 1150 galaxies in the region down to $R=20.5$. Then we applied to the sample a new, objective cluster-finding technique, which is an improved variant of the so-called "matched-filter technique" pioneered by Postman et al. (1996). Using projected positions and apparent magnitudes of galaxies simultaneously, this technique can, not only find cluster candidates, but also estimate their redshifts and richnesses. A number of Monte Carlo simulations demonstrated enough accuracies of the estimations and much lower spurious detection rate than that by conventional cluster-finding methods which use only surface density of galaxies.

We detected eight cluster candidates including A2843. The redshift and the richness estimated for A2843 are consistent with the values in the Abell Catalog. All the others have no counterparts in existing cluster catalogs. They are all located within a 31×22 $\square'$ area corresponding to 5.7×4.1 Mpc^2 at $z=0.25$ ($h=0.8$, $q_0=0.5$). Furthermore, their estimated redshifts fell into $0.2 < z < 0.3$ and agreed with one another within the uncertainties. Their small separations along the radial and transverse directions suggest that they possibly form a merging cluster, or even a small, filamentary supercluster. Two galaxy redshift surveys performed so far in the area reveal that the candidates correspond to one or two 'picket fences'. Also, we found that X-ray emissions from A2843 and from another candidate were detected by *ASCA*. These observational facts indicate that at least some of the cluster candidates detected in this study are real, and that they are concentrating within a small volume in the direction of SGP.