

**T09a**

## **Deep RIK Photometric Study of A Very High-Redshift Cluster of Galaxies Associated with QSO at $z=1.1$**

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We have obtained RIK deep images of the field around QSO1335.8+2820 ( $z=1.086$ ), around which Hutchings et al. ('93) found galaxy excess and claimed that this is a very high-redshift cluster of galaxies at the QSO. If their claim is correct, such high-redshift cluster of galaxies is so suitable for study of formation and evolution of galaxies, as well as that of clusters of galaxies itself.

Our data reaches enough depth for complete detection of  $L^*$  galaxies in this cluster and allow us to construct color-color diagram for some cluster member candidates. We have found that this region, in fact, have many "Red" objects in both R-K and R-I color, consistent with the expected color at  $z$  around 1. The reddest of them is the brightest and its K-magnitude follows the K-band BCG Hubble diagram at  $z=1.1$  in agreement with the picture that it is really BCGs in this high- $z$  cluster. BCG apparently reside in the center of galaxy excess and QSO are about 150kpc East from BCG.

We further investigated galaxy colors and their distribution on RIK color-color diagram using galaxy evolution model by Bruzual & Charlot (GISSEL95). From these analyses we could get some interesting implication for the age of galaxy formation and the star formation activities in galaxies. We will talk more about these results and about their distribution in the sky.