



# Spectroscopy of Luminous Compact Blue Galaxies in Distant Clusters I. Spectroscopic Data

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We used the DEIMOS spectrograph on the Keck II Telescope to obtain spectra of galaxies in the fields of five distant, rich galaxy clusters over the redshift range  $0.5 < z < 0.9$  in a search for luminous, compact, blue galaxies (LCBGs). Unlike traditional studies of galaxy clusters, we preferentially targeted blue cluster members identified via multi-band photometric pre-selection based on imaging data from the WIYN telescope. Of the 1288 sources that we targeted, we determined secure spectroscopic redshifts for 848 sources, yielding a total success rate of 66%. Our redshift measurements are in good agreement with those previously reported in the literature, except for 11 targets which we believe were previously in error. Within our sample, we confirm the presence of 53 LCBGs in the five galaxy clusters. The clusters all stand out as distinct peaks in the redshift distribution of LCBGs with the average number density of LCBGs ranging from  $1.65 \pm 0.25 \text{ Mpc}^{-3}$  at  $z=0.55$  to  $3.13 \pm 0.65 \text{ Mpc}^{-3}$  at  $z=0.8$ . The number density of LCBGs in clusters exceeds the field density by a factor of  $749 \pm 116$  at  $z=0.55$ ; at  $z=0.8$ , the corresponding ratio is  $E=416 \pm 95$ . At  $z=0.55$ , this enhancement is well above that seen for blue galaxies or the overall cluster population, indicating that LCBGs are preferentially triggered in high-density environments at intermediate redshifts.

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