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Bright Central Galaxies (BCGs) in Dark Energy Survey Science Verification Data: Stellar Mass Growth in X-Ray Selected Clusters and Groups Since z=1.2 YUANYUAN ZHANG, CHRISTOPHER MILLER, TIMOTHY MCKAY, Univ of Michigan - Ann Arbor, DARK ENERGY SURVEY COLLABORATION — We study the stellar mass of bright central galaxies and its evolution with time. We use a new sample of 106 $0 < z < 1.3$ clusters that have been selected in the X-ray and confirmed with redshift follow-up from Dark Energy Survey (DES) Science Verification data. This new sample allows us to probe BCG evolution over a wide range of halo mass and redshift using a single data set. We derive constraints on the BCG stellar to halo mass relation as a function of cluster mass/redshift and investigate the stellar mass growth of BCGs to z = 1.2. At $z < 0.9$, we find that the semi-analytical modeling reproduces the observed growth of BCGs. However, at $z > 0.9$, we confirm previous findings that the observed BCGs appear to be overly-massive (luminous) when compared to the models. The growth rate for BCGs in a $M_{200} = 10^{13.8}$ solar mass cluster at z=1.0 is observed to be slower than that predicted by hierarchical growth and semi-analytic modeling.

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