

X15b Dynamics of a compact relic galaxy at  $z=0.5$  explored by optical integral field spectroscopy with Subaru/Kyoto 3DII + AO188

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Recent studies have found that massive early-type galaxies (ETGs) at high redshifts ( $z > 2$ ) are much more compact than in the local universe suggesting that local massive ETGs are assembled from compact ancestors. Dynamics of the high-redshift compact ETGs (cETGs) provide further constraints on the evolution of massive ETGs which have slow rotation in the local universe. However, there is little knowledge about the dynamics of high-redshift ETGs because of difficulties in obtaining stellar kinematics. Compact relic galaxies (CRGs) at lower redshifts provide us opportunities for detailed studies. CRGs are as compact as cETGs and have old stellar population, indicating that they are survivors of high-redshift cETGs. Although CRGs are extremely rare, recent studies have found six CRGs at  $z \sim 0.5$ . In this study, we report the dynamical property of one of the six CRGs, SDSS J134412.30+010906.6 ( $z = 0.532$ ). We carried out optical integral field spectroscopy (IFS) using Subaru/Kyoto 3DII + AO188. From the IFS data, stellar velocity and velocity dispersion fields are derived. The velocity field shows a tentative sign of rotation with the projected rotation velocity of  $\sim 80$  km/s. The angular momentum and ellipticity of the target are consistent with fast rotation, which implies that high-redshift cETGs may be rotating. Our result implies that massive ETGs in the local universe have experienced dynamical evolution from fast to slow rotation if they are assembled from high-redshift cETGs.