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Velocity Dispersions and Stellar Populations of the Most Compact and Massive Early-Type Galaxies at Redshift ~1

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We present Gran-Telescopio-Canarias/OSIRIS optical spectra of 4 of the most compact and massive early-type galaxies in the Groth Strip Survey at redshift z~1, with effective radii Reff=0.5-2.4 kpc and photometric stellar masses Mstar=1.2-4x10^11 Msun. We find these galaxies have velocity dispersions sigma=156-236 km/s. The spectra are well fitted by single stellar population models with approximately 1 Gyr of age and solar metallicity. We find that: i) the dynamical masses of these galaxies are systematically smaller by a factor of ~6 than the published stellar masses using BRIJK photometry; ii) when estimating stellar masses as 0.7xMdyn, a combination of passive luminosity fading with mass/size growth due to minor mergers can plausibly evolve our objects to match the properties of the local population of early-type galaxies.

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