LINE-STRENGTH PROFILES IN EARLY-TYPE GALAXIES

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Line-strengths and their gradients in Mg, Fe, and Hβ have been determined for a sample of 9 brightest cluster (BCG), 7 elliptical, and 15 S0 galaxies in order to study their stellar populations and investigate their relationship to one another. We find that BCGs follow the same relationship between central Mgb line-strength and central velocity dispersion found for ellipticals while the S0 galaxies show significant scatter with respect to this relation. Brightest cluster galaxies are in agreement with the known trend towards more massive ellipticals having larger [Mg/Fe] ratios while the internal gradients *within* our BCG and E galaxies are consistent with a roughly constant [Mg/Fe] ratio. We find that a correlation exists between the central [Mg/Fe] ratio and average Hβ line-strength in the sense that BCG and E galaxies with larger [Mg/Fe] ratios have lower Hβ strengths. For our BCG and E galaxies, Hβ is the best predictor of [Mg/Fe] ratio. The Mgb metallicity gradients for BCGs and ellipticals are similar and consistent with a reduction in the mean metallicity of the stellar population by about a factor of 2 over a factor of ten in radius. No strong correlations are found between the metallicity gradient sizes and either kinematic or line-strength parameters of the E and BCG galaxies. The S0 disks display roughly constant Mg, Fe, and Hβ line-strengths with radius indicating that they have uniform age and metallicity throughout. S0 galaxy minor axes 'bulge' metal line-strength gradients are similar to elliptical gradients and fall to values lower than those found in the disks.

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