

The effect of Helium-enhanced stellar populations on the ultraviolet upturn phenomenon of early-type galaxies

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Abstract. We present new population synthesis models (Chung *et al.* 2011) for quiescent early-type galaxies (ETGs) with UV-upturn phenomenon using relatively metal-poor and helium-enhanced subpopulations in the model. We find that the presence of helium-enhanced subpopulations in ETGs can naturally reproduce the strong UV-upturns observed in giant elliptical galaxies (Figure 1. left panel), without invoking unrealistically old ages (Park & Lee 1997). Our models with helium-enhanced subpopulations also predict that the well-known Burstein relation can be explained by the fraction of helium-enhanced subpopulation, the mean age, and the mean metallicity of the underlying stellar populations (Figure 1. right panel).

Keywords. galaxies: elliptical and lenticular, CD — galaxies: evolution — galaxies: stellar content — ultraviolet: galaxies

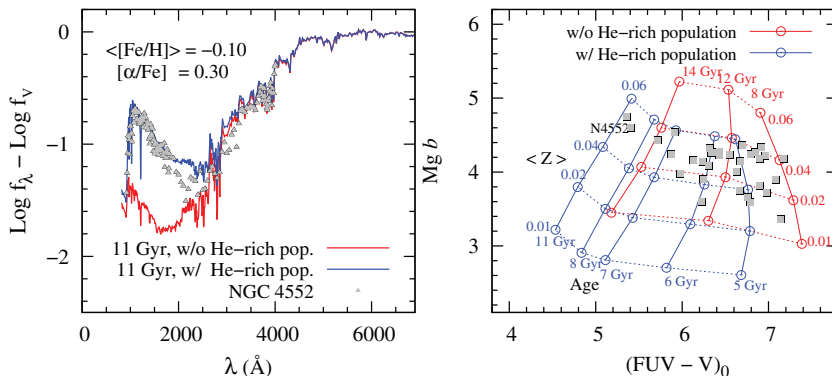


Figure 1. (Left) Comparison of observed SEDs of NGC 4552 with our models. (Right) FUV–V color vs. Mg b correlation for the sample of quiescent ETGs from Bureau *et al.* (2011).

References

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