THE AGE SPREAD AMONG GALAXIES AND THE ORIGIN OF THE UV RADIATION FROM ELLIPTICAL GALAXIES:

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Recent UV observations of elliptical galaxies are interpreted as evidence for the global second parameter phenomenon of horizontal-branch (HB) morphology within, as well as between, these galaxies. In this picture, the origin of the UV radiation is mostly due to hot HB stars and their post-HB progeny produced by the metal-poor tail of the wide metallicity distribution expected to be present in these systems. The attractive feature of this model is that the bimodal temperature distributions of HB stars (and their progeny), required to generate the 2000 $\AA$ dip of the spectral energy distribution (SED), can naturally be reproduced from the standard HB population models with large range of metal abundance (see Lee 1994, ApJ, **430**, L113). Detailed population synthesis models are presented, which reproduce the systematic variation of UV upturn among elliptical galaxies (Fig 1). If age is the major second parameter, as suggested by the fossil record in our Galaxy, the observed UV color gradient and the UV upturn-total mass (mean metallicity) correlation, within and between the early-type systems, would imply, respectively, (1) that most galaxies formed from the inside out, and (2) that there is age spread among galaxies, in the sense that more massive galaxies are older (and more metal-rich *in the mean*) than less massive galaxies as a result of more efficient star formation (and metal enrichment) in denser environments.

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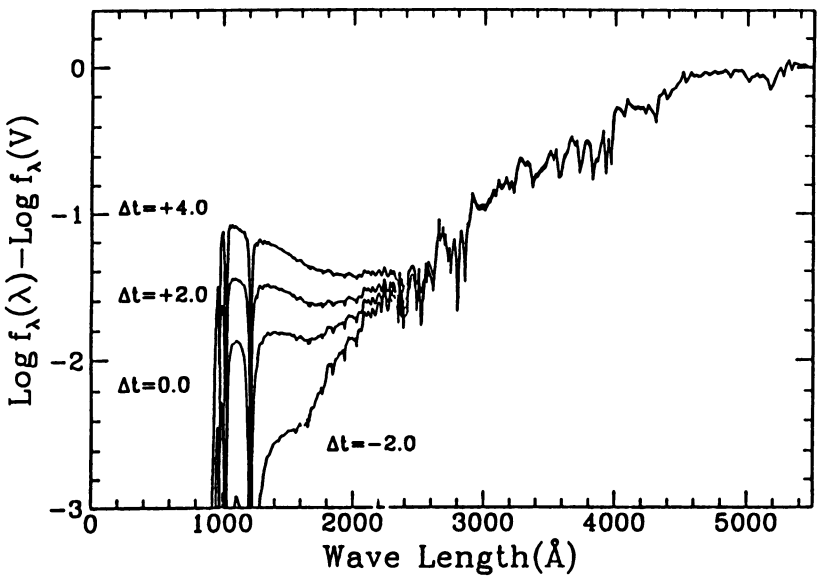
Fig. 1. The synthetic SED's for model elliptical galaxies. Note that the UV upturn increases with increasing age, because the relative frequency of metal-poor hot HB stars and their post-HB progeny becomes more prominent as age increases. The $\triangle t = 0$ corresponds to the age of the Galactic bulge (Lee 1992, AJ, **104**, 1780).



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