A REVISED AGE FOR THE Z = 1.55 GALAXY LBDS 53W091

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Empirical evidence suggests that the stellar population in LBDS 53W091 is significantly younger than the dominant population in M32. We have used evolutionary population synthesis models to estimate the age of the dominant population in these stellar systems. The age of LBDS 53W091 is in the range from 1 to 2 Gyr and depends on the specific model. Older ages require sub-solar metallicity models. The estimates of the age of the dominant population in M32 range from 3 to 5 Gyr and depend not only on the model but also on the SED of this galaxy used in the fits. The same models predict an age of 11 to 13 Gyr for the stars in a typical old E/S0 galaxy. This age is consistent with the age of the metal-rich galactic bulge globular clusters NGC 6553, NGC 6528, and Terzan 5. Passive evolution seems an adequate scenario for the evolution of the stellar population in E galaxies from $z = 1.6$ to $z = 0$. The dominant population in M32 is genuinely young (3 to 5 Gyr), independently than an older stellar population may be present in this galaxy. Thus, M32 may not be representative of galaxies that evolve passively. The length of time for which these galaxies have existed as individual dynamical entities is not determined by our models. The age of the $\Lambda = 0$, $\Omega = 1$ universe at $z = 1.552$ is $1.6h^{-1}$ Gyr. Hence, a 1 to 2 Gyr old galaxy at $z = 1.552$ poses no problem for this universe as long as $h \leq 0.8$. In this universe, the 13 Gyr limit for the E/S0 galaxy at $z = 0$ requires $h \leq 0.5$. The most likely reason for the difference between our age estimate of 1 to 2 Gyr for LBDS 53W091 and the value of 3.5 Gyr derived by Dunlop et al. (1996) and Spinrad et al. (1997), is the fact that these authors did not require that the population synthesis models that they used fitted simultaneously the UV break amplitudes and the observed $R - J$, $R - H$, and $R - K$ colors of this galaxy. This will be discussed in detail elsewhere.
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K. Sato (ed.), Cosmological Parameters and the Evolution of the Universe, 152.