X17c The Evolution of the Ultraviolet and Infrared Luminosity Densities in the Universe at $0 < z < 1$

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The ratio between far-ultraviolet (FUV) and infrared (IR) luminosity densities from $z = 0$ to $z = 1$ is discussed by using the luminosity functions (LFs) of both wavelengths. The FUV LF ($z = 0$–1) based on *GALEX* has been reported by Arnouts et al. (2005). For the IR LF, we used the *IRAS* PSCz 60-μm LF for the local universe (Takeuchi et al. 2003) and the *Spitzer* 15-μm LF at higher-z (Le Floch et al. 2005). To obtain the total IR (dust) LF, we converted the luminosites at these bands to the total dust luminosity (IR luminosity in the wavelength range of $\lambda = 8$–$1000\,\mu$m) by using the linear relations between L_{60}, L_{15}, and $L_{\rm dust}$ (Takeuchi et al. 2005).

Both luminosity densities show a significant evolutionary trend, but the IR evolves much faster than the FUV. Consequently, the ratio $\rho_{\rm dust}/\rho_{\rm FUV}$ increases toward higher-z, from ~ 4 (local) to ~ 15 ($z \simeq 1$). It is also shown that more than 70 % of the star formation activity in the universe is obscured by dust at $0.5 \lesssim z \lesssim 1.2$.