UV TO NIR GALAXY EVOLUTION AND GALAXY COUNTS

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We have improved in the NIR the model of galaxy evolution developed by Guiderdoni & Rocca-Volmerange (A&A **186**, 1) in the UV and the visible, allowing thus a multispectral analysis of the evolution of galaxies and of faint galaxy counts. Since evolutionnary effects should be low in the near-infrared, cosmological ones might be put in evidence.

The recent M giants spectra and T_{eff} of Fluks et al. (A&Âss **105**, 311) are used and their bolometric corrections have been computed. More than 90 % of the K-luminosity of an ordinary galaxy comes from these stars. The infrared spectrum of other stars is a fit on observed colours. Stellar tracks for solar metallicity are from Bressan et al. (A&Ass **100**, 647) up to the EAGB and have been completed by the TPAGB phase as described in Groenwegen et al.(A&A **267**, 410).

The algorithm computs a burst of star formation and takes into account all the evolutionnary phases without loss of energy and avoids thus the oscillations of the colours. Synthetic spectra, including extinction, nebular emission and mass rejection are produced by the convolution of the bursts with star formation rates. The evolution of colours in (U-V,B-V) and (U-V,V-K) diagrams shows that different couples of age and star formation history may reproduce observed colours.

Predictions of number-magnitude counts in open and flat universes are compared to observations in the visible and the K for a classical luminosity function. For each cosmology and Hubble type, coherent z_{for} and SFR are choosen. Pure luminosity evolution in an open universe is compatible with K-counts but shows the well-known excess of faint blue galaxies in the blue. The normalisation of the LF on the K-counts is low and in agreement with bright blue counts of Maddox et al. (MNRAS **247**, 1p). An open universe in which the ellipticals and early-type spirals dominating the K-luminosity undergo a significant luminosity evolution is favoured by K counts but an additionnal population invisible in the blue bright counts and in the K seems however required to fit the faint blue counts.