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Título: The SFR-Mass-Metallicity relation of galaxies free from aperture effects: the empirical correction from the CALIFA survey

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Resumen:

Galaxy spectroscopic fluxes in large massive surveys, such as SDSS, suffer from severe quantitative effects due to their uncomplete coverage by the aperture used in the observations. These effects, in turn, can not be easily expressed on a simple geometrically derived recipe as can be shown by the recent result from the CALIFA survey (Iglesias-Paramo et al 2013). Properties like galaxy morphology, star formation pattern or precise dust distribution of each galaxy affect the observed spectra in a non trivial way. Therefore a realistic aperture correction must be applied to any single-aperture spectroscopy (i.e. from SDSS) in order to be able to represent the entire galaxy. Some model-based corrections have been developed leading to unrealistic approximations for total H α based star formation rate (SFR) or the galaxy metallicity. Given the relevance of these fundamental spectrophotometric properties for the construction of the fundamental Mass-Metallicity-SFR relation and for our understanding of galaxy evolution, we have used our empirically derived CALIFA survey aperture corrections to produce realistic SFR and metallicities of galaxies for an extended sample including all SDSS star-forming galaxies.