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Katarzyna Małek (NCBJ)/Patryk Matera (OAUW/NCBJ), Hidden message: looking for attenuation proxy in optical observations

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Future large sky surveys, such as the Legacy Survey of Space and Time (LSST), will gather optical photometry for billions of galaxies. Dataset obtained from LSST will provide an amazing opportunity to test different theories of galaxy evolution. However, due to limitations in observed wavelength, and the lack of spectroscopic redshifts, modeling physical properties of the LSST galaxies will bring a lot of challenges which we have to solve before the first data release. The most important question is the dust content in a galaxy. Since dust is one of the elements that truly shapes the spectral energy distribution of the galaxy, we have to find a way to estimate the amount of dust which covers stars. Fol- lowing our recent discovery of hidden attenuation proxy retrieved from surface brightness and color using optical only data in the Sloan Digital Sky Survey (SDSS), we try to push the boundaries and look for similar relations in cosmological simulation. We used SIMBA, the state-of-the-art cosmological hydrodynamic simulation, due to its careful dust treatment with a rich chemical evolution of the ISM. Selecting similar samples of galaxies to those used in Maek et al., we are able to obtain similar relation for dust attenuation and optical properties of observed galaxies, but also to go deeper in the surface brightness.

Session Classification : Galaxies