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2D kinematical study in local luminous compact blue galaxies. Starburst origin in UCM2325+2318

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Abstract

Luminous Compact Blue Galaxies (LCBGs) are small, but vigorously star forming galaxies. Their presence at different redshifts denotes their cosmological relevance and implies that local starburst galaxies, when properly selected, are unique laboratories for studying the complex ecosystem of the star formation process over time. We have selected a representative sample of 22 LCBGs from the SDSS and UCM databases which, although small, provides an excellent reference for comparison with current and future surveys of similar starbursts at high-z. We are carrying out a 2D optical spectroscopic study of this LCBG sample, including spatially resolved maps of kinematics, extinction, SFR and metallicity. This will help us to answer questions regarding the nature of these objects. In this poster we show our results on the kinematical study (Pérez-Gallego et al. 2011) which allows us to classify these galaxies into three different classes: rotating disk (RD) 48%, perturbed rotation (PR) 28% and complex kinematics (CK) 24%. We find 5% of objects show evidence of a recent major merger, 10% of a minor merger, and 45% of a companion. This argues in favor of ongoing interactions with close companions as a mechanism for the enhanced star formation activity in these galaxies. We find only 5% of objects with clear evidence of AGN activity, and 27% with kinematics consistent with SN-driven galactic winds. Therefore, a different mechanism may be responsible for quenching the star formation in LCBGs. The detailed analysis of the physical properties for each galaxy in the sample is on progress and we show in this poster the results on UCM2325+2318 as a prototype LCBG. Between the possible mechanisms to explain the starburst activity in this galaxy, our 2D spectroscopic data support the scenario of an on-going interaction with the possibility for clump B to be the dwarf satellite galaxy (Castillo-Morales et al. 2011, Pérez-Gallego et al. 2010).