

A New Southern Blue Compact Dwarf Galaxy ESO 105-IG11: Is there an expanding superbubble?

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We present high/low resolution spectroscopy and optical multicolor CCD images for a new southern blue compact dwarf galaxy ESO 105-IG11. Our low resolution spectroscopic observation confirms this galaxy is a new blue compact dwarf galaxy. Optical CCD images show a double core structure. H α CCD image suggests that this galaxy has two active starforming regions near its center which are coincident to its double core. Abundance analysis from emission lines shows this galaxy has 1/11 of solar value. ESO 105-IG11 appears to have a low-surface brightness elliptical envelope, which is extended beyond to 1'.5. The two-dimensional high resolution H α and [O III] long-slit spectroscopy was carried out for more than 10 position angles. Our velocity field analysis shows that ESO 105-IG11 has unusual rotational velocity curves suggesting an expanding superbubble or supershell with an apparent expanding velocity about 50 km/sec. The existence of expanding superbubble in this galaxy is also confirmed by H α emission line features which show double peaks. The rotational velocities also show that this galaxy rotates in the principal plane lying at optical major axis, position angle 146 degree with the 25 km/sec at radius of 30".