

Ultraviolet Emission from Star-formation in Selected Gas-rich Early-type Galaxies

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Abstract. We present *GALEX* ultraviolet (UV) emission results of star-formation in a small sample of nearby, gas-rich early-type galaxies. The first observational evidence of star-formation in this sample was presented by Leeuw *et al.* 2008, using 350 μm continuum data. The measured far-infrared (far-IR) excess of these galaxies showed that the most likely and dominant heating source of the observed 350 μm continuum emission from dust is star-formation, that could have been triggered by an accretion or merger event. Consistent with starbursts that are less than 1 Gyr (e.g., Kaviraj 2010), the *GALEX* near-UV (NUV) minus SDSS r-band emission of the galaxies is < 5.5 . The UV results corroborate those of mid-IR to radio data for the sample.

Keywords. galaxies: elliptical and lenticular, cD – galaxies: evolution – galaxies: ISM – infrared: general – submillimeter – ultraviolet: general

Synopsis

We summarize ultraviolet (UV) emission results of on-going star-formation determined from archival *GALEX* and SDSS data for a small sample of nearby early-type galaxies, that were known to have CO in centrally located gas disks. Like classic ellipticals, the luminosity profiles of these galaxies follow the de Vaucouleur, $r^{1/4}$ law. However, they represent a spread of merger tracers or ages, from galaxies that have been morphologically classified as on-going or early-age major mergers to very-late accretion or quiescent systems (Leeuw *et al.* 2008; 2011). Using 350 μm continuum data, Leeuw *et al.* 2008 presented the first observational evidence of star-formation in this sample. The measured far-infrared (far-IR) excess of these galaxies showed that the most likely and dominant heating source of the observed 350 μm continuum emission from dust is star-formation, that could have been triggered by an accretion or merger event and is stronger in the “most recent mergers”. Consistent with starbursts that are less than 1 Gyr (e.g., Kaviraj 2010), the *GALEX* near-UV (NUV) minus SDSS r-band emission of the galaxies is < 5.5 . Further, the sample dwarf elliptical NGC 4476 and intermediate-age elliptical NGC 5666, that respectively have only a hint and a dense ring of star-formation, based on their far-IR data, have NUV-r = 4.58 and 2.64. This UV analysis corroborates the star-formation results from those of mid-IR to radio data for this very small sample.

References

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