**Correlation of ultraluminous x-ray sources (ULXs) and star formation rate (SFR) of their host galaxies**

S. A. Khairunnisa, H. Wulandari and I. G. P. M. Priajana

 Astronomy Research Division, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Jl. Ganesha 10, Bandung 40132

ABSTRACT

Ultraluminous X-ray sources (ULXs) are extragalactic point-source objects located outside the nuclear region of a galaxy with apparent X-ray luminosities Lx > 2x1039 erg s-1 in the 0.3-8 keV band. We constructed a sample set of ULX candidates that have been selected and combined from Liu (2011) and Walton et al. (2011). We found that there are 546 ULXs candidates in 233 host galaxies that lies within a distance of 40 Mpc. To get a better understanding of their nature, we aimed at studying the correlation between the ULXs and properties of their host galaxies, especially their Star Formation Rates (SFRs). We have collected the required data from various catalogues to calculate SFR based on hydrogen recombination line (H) and total infrared (TIR) by following the method described in Kennicutt & Evans (2012). Further analysis was focused on ULX candidates located inside isophotal radii (R25) of their host galaxies by utilizing inclinations and position angle-corrected distances from the galactic centers. We found that interacting and starburst galaxies could trigger ULXs formation, but not a mandatory requirement. From negative trends showed by specific luminosity, ULXs, and SFR distribution, we also found that ULXs are more likely to resides in the low-mass galaxies.

*Keywords: Galaxies; Star Formation; X-ray Binaries*

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