A MULTI-MERGING GALAXY MRK 273 WITH HOT EXTENDED GASEOUS HALO AND AN EXTENDED SOFT X-RAY COMPANION

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The ultraluminous *IRAS* galaxy Mrk 273 is a Seyfert 2, multi-merger system with a triple-nucleus and a 20 kpc ($H_0 = 100$ km s^{-1} Mpc^{-1}) jet to the South. Also, a plume and faint tail extends ~50 kpc Northwest and there are more than 10 dwarf galaxies within 100 kpc of Mrk 273 as determined from the POSS II R and J film copy. Therefore, the precursor of Mrk 273 is probably connected with a group of galaxies.

ROSAT PSPC observations show that the soft X-ray emission of Mrk 273 is extended up to 50 kpc. Moreover there exists an extended soft X-ray companion at a distance of about 30 kpc that is certainly connected with Mrk 273 as revealed by our follow-up optical spectroscopic observation. The soft X-ray luminosity of the companion is 6.3×10^{41} erg s^{-1} and its optical counterpart is an irregular dwarf galaxy as determined from its optical image and estimated apparent magnitude.

The soft X-ray luminosity for known irregular dwarfs is not as high as 10^{41} erg s^{-1} and the extended hot gaseous halo is not the established character of a Seyfert 2 galaxy. As Ponman et al. (1994, *Nature*, **369**, 462) pointed out, an elliptical galaxy formed by the merger of a group will retain its halo. Therefore the hot gaseous halo and the soft X-ray companion of Mrk 273 very likely are a result of a multi-merger process and this may be evidence to support the merger origin for the intergroup or intercluster hot gas.

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