



- RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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Revealing the Compton-thick Active Galactic Nuclei in the Two “Non-merging” Luminous Infrared Galaxies with Broadband X-ray Observations (NGC 5135 and UGC 2608)

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Recent X-ray studies suggest that mergers play an important role for obscuration of active galactic nuclei (AGNs) in ultra/luminous infrared galaxies (U/LIRGs). Here we analyze the broadband X-ray spectra (0.5-50 keV) of two “non-merging” LIRGs (NGC 5135 and UGC 2608) utilizing the data of NuSTAR, Suzaku, XMM-Newton, and Chandra, in order to search for differences in the torus structure from “merging” U/LIRGs. Applying the X-ray clumpy torus model (XCLUMPY: Tanimoto et al. 2019), we find that both sources show similar spectra characterized by heavily absorption with $N_{\text{H}} > \sim 1 \times 10^{24} \text{ cm}^{-2}$, and the torus angular-width is $\sim < 30$ degrees, respectively. The luminosity ratio between the [O IV] 25.89 μm line and 12 μm continuum is consistent with those of typical Seyfert galaxies, also suggesting that the covering fractions of the tori are moderate (Yamada et al. 2019). Our result implies that AGNs in non-merging galaxies tend to be not deeply “buried”, in contrast with U/LIRGs in late merging stages.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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