

Relationship between gamma-ray loudness and X-ray spectra of radio galaxies

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Radio galaxy (RG) is one of AGNs. The Fermi has detected about 60 RGs, but it is only 10% of part of the RGs detected in the radio band. In this study, we investigated the difference in their X-rays properties between GeV-loud and GeV-quiet RGs. In addition to 38 RGs detected by Fermi with available X-ray data, we selected 25 RGs shown in Mingo et al. 2014 and Massaro et al. 2015 as GeV-quiet RGs. We performed X-ray spectral analysis of these 63 RGs using data from the XMM-Newton, Chandra, NuSTAR, and Swift. As a result, the distribution of photon indices and luminosities showed no obvious difference between GeV-loud and GeV-quiet RGs. On the other hand, for the distribution of the absorption column density N_{H} , about half of the GeV-quiet RGs have N_{H} larger than 10^{22}cm^{-2} and most of the GeV-loud RGs have N_{H} smaller than 10^{22}cm^{-2} . This can be explained by that jet of GeV-loud RGs are observed from a smaller viewing angle and thus the disk/corona X-ray emission is not blocked by the torus, resulting in a smaller absorption. On the other hand, jet of GeV-quiet RGs are observed from a larger angle and thus the disk/corona X-ray emission is easily blocked by the torus, resulting in a bigger absorption.

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