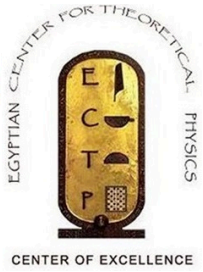
Online Conference on
Gravitational Physics and Astronomy
4-9 December 2022
Internet https://indico.cern.ch/e/GPA2022
JOURNAL https://www.mdpi.com/journal/physics/special_issues/SPGPCC



Contribution ID: **26** Contribution code: **GPA22-26** Type: **not specified**

Separating the spectral counterparts in NGC 1275/Perseus cluster in X-rays

Wednesday 7 December 2022 10:00 (30 minutes)

We are developing the optimal recipe to separate the spectral counterparts of the active galactic nucleus NGC 1275 and the Perseus cluster surrounding it in the spectra observed by Suzaku/XIS cameras. The key problem here is due to the fact that the emission of the cluster reaches the energies significantly higher than in the most cases of AGN even for those situated in the surroundings quite dense. Namely, the traces of the cluster medium emission can be traced in the soft-to-hard X-rays up to the level of 9-10 keV. That is why the separation of these two components: the AGN and the cluster, is especially important in this case. We prefer to avoid the usage of spectral fitting to perform this task due to huge quantity of fitting parameters necessary to describe all the components of this spectrum (i.e. abundances of elements the cluster consists of, thermal and Compton emission of the nucleus itself, and the jet SSC/IC emission spectral parameters as well) and as a result, the model degeneracy. Instead we use the spatial resolution of the components and double background subtracting. For this purpose we choose the following regions to collect all the photons from them: (1) circular region of the radius around the source (AGN); (2) ring-shape region surrounding the AGN (for cluster); (3) remote empty circular region for the background. Having collected the photons from those regions we subtract the background (i.e. photons from the third region) from the source and cluster spectra. On this stage one can see the emission line near 6.55 keV clearly visible in both the AGN and cluster spectra. Being emitted in the cluster this line can be used to estimate the quality of background subtracting on the second step. Namely, from the AGN spectrum we subtract the cluster counts normalized with the relation between the 6.55 keV emission line amplitudes in the AGN and cluster spectra. The absence of this line in the spectrum after the second background subtraction step can be considered as a criteria of the correctness of the procedure. We have performed this procedure to the whole set of the Suzaku/XIS observational data for NGC 1275 to obtain the cleaned spectra of the AGN in this system.

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