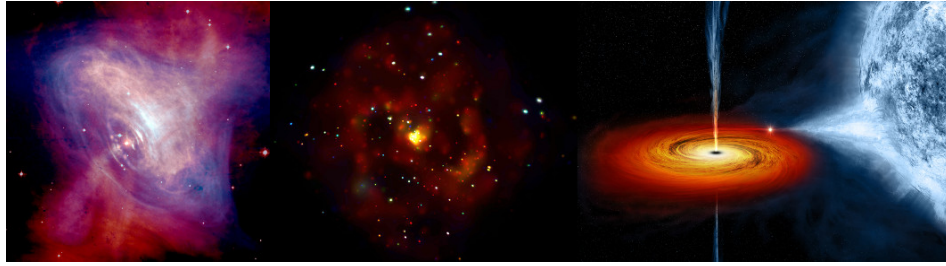


National conference on REcent Trends in the study of Compact Objects
(RETCO-V): Theory and Observation



Contribution ID: 84

Type: not specified

Survey of Bare Active Galactic Nuclei in local universe ($z < 0.2$): On the origin of Soft-Excess

Tuesday, April 4, 2023 9:25 AM (15 minutes)

The soft excess, an excess emission below 2 keV, is an extraordinary feature of the X-ray spectra for most of the Seyfert 1 AGNs. The origin of this feature remains debated, as several models have been suggested to explain it, including warm Comptonization, blurred ionized reflection and other models. From the long-term observations of Ark 120, a bare AGN, we found a strong correlation between soft-excess and primary continuum. This supports the idea that the soft-excess emission could be caused by a different number of scatterings in the Compton cloud or hot corona as compared to the primary continuum. Then we analyze a sample of 21 'bare' Seyfert 1 AGNs using Swift/XRT and XMM-Newton observations (the total number of observations:305). The X-ray spectral properties of these sources are studied using the powerlaw model, where this model fits the primary continuum and soft excess. Our spectral analysis reveals that the long-term intrinsic luminosities of the soft excess and the primary continuum are correlated for each source. We also studied the overall scenario from the spectral analysis of each source and found that these luminosities are tightly correlated. That implies that the soft excess and the primary continuum could be originated from the same physical process. Considering the Comptonization scenario for powerlaw emission, the higher number of scatterings may cause the primary continuum. On the other hand, the soft-excess part could be constructed by the photons, which suffered fewer scatterings. These results provide valuable insights into the nature of soft-excess emission and could guide future studies in this field.

Presentation Type

Oral

Primary authors: NANDI, Prantik (Post Doctoral Fellow in PRL); CHATTERJEE, Arka (University of Manitoba)

Co-authors: ARGHAJIT, Jana (National Tsing Hua University); NAIK, Sachindranatha (Astronomy and Astrophysics Division, Physical Research Laboratory, Navrangpura, Ahmedabad - 380009, Gujarat, India); CHAKRABARTI, Sandip K. (Indian Centre for Space Physics); CHANG, Hsiang-Kuang (National Tsing Hua University); SAFI-HARB, Samar (University of Manitoba); HEYL, Jeremy Samuel (University of British Columbia)

Presenter: NANDI, Prantik (Post Doctoral Fellow in PRL)

Session Classification: AGNs & Blazars

Track Classification: AGNs and Blazars