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X-ray Spectral Fitting of AGNs in XMM-COSMOS with a Bayesian Hierarchical Method

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We present our results of fitting 663 X-ray spectra of AGN sources in the XMM-COSMOS field detected in 2-7 keV band, all of which have a spectroscopic redshift. We developed a new approach based on a Bayesian hierarchical model in order to correctly propagate on the main spectral parameters like Gamma and Nh the uncertainties due to the presence of additional, ill-constrained components like reflection and soft-excess, that are present in the X-ray spectra of AGN. Realistic simulations of AGN spectra have been created and analysed to validate our approach and identify the limitations in the recovery of the main parameters. Using the measured probability distributions and a Bayesian hierarchical model for the parent properties, we determine the distribution of the hydrogen column density as a function of redshift, and we study the dependence of the obscured AGN ratio on the source luminosity.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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