



X-RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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Quasars as standard candles

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The non-linear X-ray to UV relation in quasars can be used to estimate their luminosity. Our analysis of a sample of several thousand quasars with SDSS spectra and X-ray serendipitous observations shows that, quite unexpectedly, the observed dispersion of the relation is almost entirely due to observational effects, while intrinsically the relation holds with a very small dispersion -lower than 0.1 dex- on five orders of magnitudes in luminosity, and over the whole $z=0-7$ range. This implies that (1) a universal physical mechanism links the accretion disk and the UV-emitting corona, and (2) quasars can be turned into standard candles, and used to measure the expansion of the Universe at high redshift.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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