



X-RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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X-raying winds in distant QSOs: the case of the Einstein Cross

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The characterization of AGN feedback is still an open issue. Theories and simulations indicate that AGN-galaxy co-evolution and feedback processes could be established through the generation of gas outflows. These are seen to arise from the innermost regions as powerful winds at sub-pc scales, visible in the X-ray band. We present the results from a systematic analysis of all the available *Chandra* and *XMM-Newton* data (as of October 2018) for Q2237+030, the Einstein Cross, a radio-quiet quasar at $z_Q = 1.695$, quadruply-imaged by a spiral galaxy at $z_L = 0.0395$.

We detect, for the first time, a fast X-ray wind in this object outflowing at $v_{\text{out}} \simeq 0.1c$, which seems to be powerful enough to significantly affect the host galaxy evolution ($E_{\text{kin}} \simeq 9\% L_{\text{bol}}$). Given the absorption features detected throughout the data, we report also on the possible presence of a faster component of the wind ($v_{\text{out}} \sim 0.5c$). Evidence for outflows is found in nine spectra out of the sixteen analyzed, which allows us to give a rough estimate of the wind duty cycle as $\sim 50\%$.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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