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Tracking the Iron Kα line and the Ultra Fast Outflow in NGC 2992

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Variability is one of the best tools to investigate the emission mechanisms in Active Galactic Nuclei (AGN). We report on the 2010 XMM-Newton monitoring of the highly variable Seyfert 2 Galaxy NGC 2992, which was subsequently targeted by Swift and NuSTAR in 2015. XMM-Newton always caught the source in a faint state but NuSTAR observed a brightening of the source, with evidence of an Ultra Fast Outflow with velocity v=0.21±0.01c. A re-analysis of the high flux 2003 XMM data confirmed the presence of such a highly ionized accretion disk wind, with two distinct outflowing velocities (v1=0.215±0.005c and v2=0.305±0.005c). The UFO in NGC 2992 is consistent with being ejected at a few tens of gravitational radii only at accretion rates greater than 2% of the Eddington luminosity.
The analysis of the XMM data also allowed us to determine that the Iron Kα emission line complex in this object is likely the sum of three distinct components: a constant, narrow one due to reflection from cold, distant material (likely the molecular torus); a narrow, but variable one which is more intense in brighter observations and a broad relativistic one emitted in the innermost regions of the accretion disk.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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