

S33a Resolving the Multiple Component Outflow in PG 1211+143 by XRISM

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Recent observations of the nearby quasar PDS 456 with the XRISM satellite have revealed that the absorption feature previously interpreted as a single broad line due to an ultra-fast outflow (UFO) is, in fact, a superposition of multiple narrow absorption lines with distinct velocities (XRISM collaboration 2025, Nature). This finding indicates the presence of a so-called “UFO forest” structure and suggests that the UFO exhibits a clumpy, inhomogeneous nature. In this study, we conducted XRISM observations of another nearby quasar, PG 1211+143, which similarly exhibits prominent UFO absorption features. Our analysis demonstrates that PG 1211+143 also has a UFO forest structure, analogous to that observed in PDS 456. Furthermore, simultaneous observations with XMM-Newton have revealed the presence of comparable UFO forest features in the soft X-ray band. In addition, the detected UFO components can be broadly categorized into two velocity groups, approximately $0.1c$ and $0.3c$. In this talk, we discuss the implications of these results for the structure and launching mechanisms of AGN disk winds.