

Fe K α fluorescent lines detected in X-rays near 6-7 keV are powerful diagnostics to probe the central region of Active Galactic Nuclei (AGN) which harbors a supermassive black hole (10^6 - 10^9 solar masses). Thanks to XMM-Newton and its unprecedented high sensitivity up to 12 keV, detailed and various line characteristics (e.g., energy, profile, intensity, shift) are detected.

Here are reported the XMM-Newton observations and analysis of the Fe K α fluorescent lines in three AGN: A **radio-quiet quasar Q0056-363** (Porquet & Reeves 2003, *A&A*, 408,119), a **Narrow-line Seyfert 1 PG 1402+261** (Reeves, Porquet & Turner 2004, *ApJ*, in press) and an **intermediate Seyfert 1.8 ESO 113-G010** (Porquet et al. 2004, *A&A*, in press).

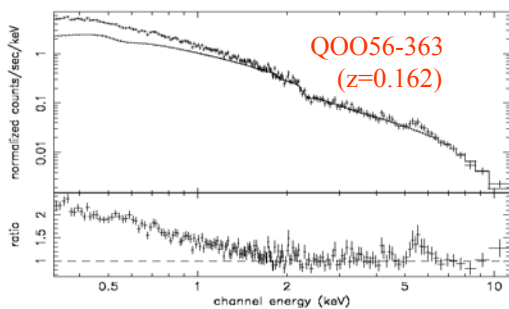


Figure 1: PN spectrum of **Q0056-363** (observer frame). A power-law has been fitted to the 2.5-5 keV data and extrapolated to lower and higher energies.

Figure 1 shows the PN spectrum of **Q0056-363**. A broad, strong soft X-ray excess is seen below about 2 keV, and more interestingly a strong Fe K α line at 6.4 keV (quasar frame). This line, formed in a plasma where iron is moderately ionized, has an equivalent width of ~ 250 eV, and a velocity width of $\sim 25,000$ km s $^{-1}$. Q0056-363 is **presently the most luminous AGN known to exhibit such a broad and intense line profile from near neutral iron**.

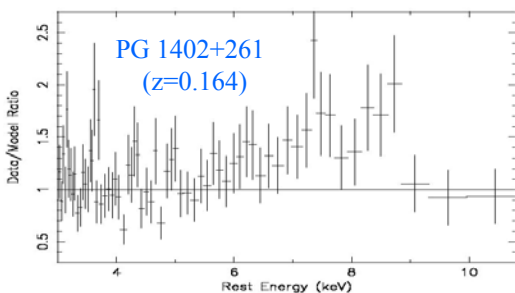


Figure 2: The iron line profile of **PG1402+261** showing the ratio of the PN data to a broken power law continuum fit (quasar rest-frame).

Figure 2 shows the PN spectrum of **PG 1402+261**. The feature can be modeled by an **unusually strong equivalent width (~ 2 keV) and a very broad (FWHM velocity of $110,000$ km s $^{-1}$) iron K α emission line**. The line centroid energy at 7.3 keV appears blue-shifted with respect to the iron K α emission band between 6.4-6.97 keV, whilst the blue-wing of the line extends to 9 keV.

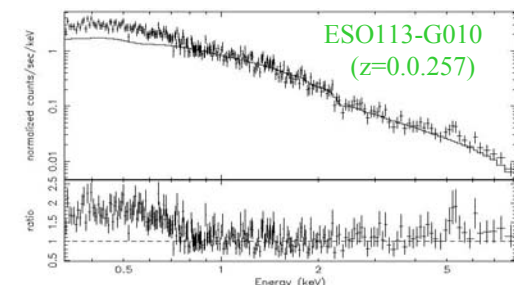


Figure 3: PN spectrum of **ESO 113-G010** ($z=0.0257$, observer frame). A power law has been fitted to the 1-4 keV data and extrapolated to lower and higher energies.

Figure 3 shows the PN spectrum of **ESO 113-G010**. It shows a soft excess below 0.7 keV and more interestingly a **narrow emission Gaussian line at 5.4 keV** (quasar rest-frame), most probably originating from a red-shifted lines, ruling out a strong blue-wing to the line profile. The line is detected at 99% confidence from performing Monte Carlo simulations. The line energy could indicate **either emission from relativistic (0.17 - 0.23 c) ejected matter moving away from the observer, or by the emission from a small, localized hot-spot on the disk, occurring within a fraction of a complete disk orbit**.