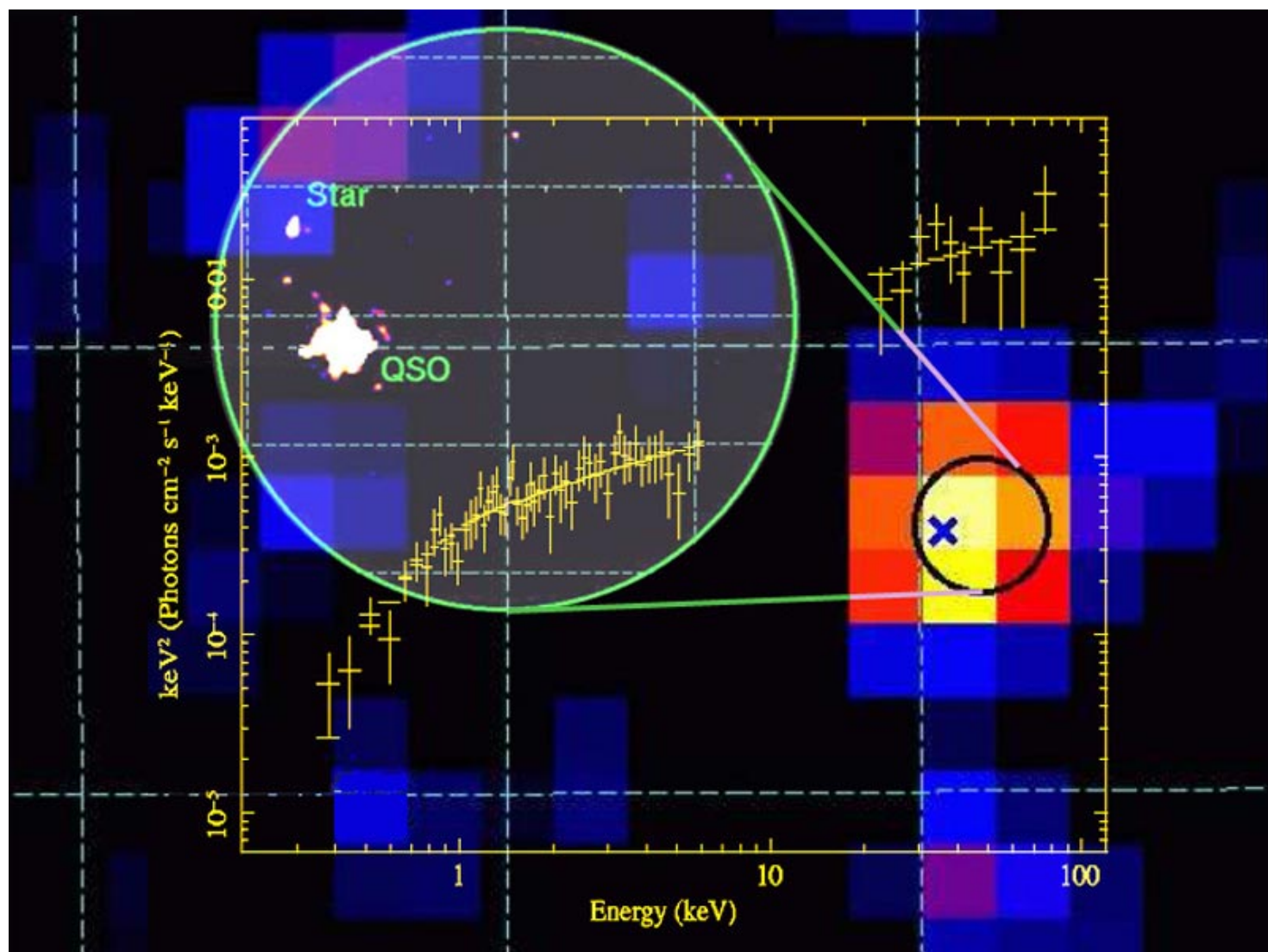


Picture of the Month

October 2007



IGR J22517+2218=MG3 J225155+2217: a new gamma-ray light house shining from the edge of our Universe

IGR J22517+2218 was yet another unidentified object discovered by INTEGRAL/IBIS, but this time the quest for its identification turned out to be particularly rewarding. Follow up Swift/XRT observations identified its optical counterpart in MG3 J225155+2217, a quasar at $z=3.668$, the farthest object so far detected by INTEGRAL.

The image shows the detection of this new source by the ISGRI camera on IBIS in the 20-100 keV band while the zoom refers to a Swift/XRT observation covering the entire INTEGRAL error box: the brightest object detected in the 2-10 keV band is indeed the high redshift quasar. Superimposed on the image is the combined IBIS/XRT spectrum over the 0.4-100 keV band (or 2-500 keV in the source rest frame).

IGR J22517+2218 has a flat radio spectrum and is radio loud implying a blazar nature. Nevertheless, the Source Spectral Energy Distribution is unusual compared to blazars of similar type: either it has the synchrotron peak in the X/gamma-ray band (i.e. much higher than generally observed) or the Compton peak in the MeV range (i.e. lower than typically measured). Other source peculiarities include a narrow line absorption system, spectral curvature below 1-2 keV and X/gamma-ray variability.

The rest frame luminosities are 2×10^{48} erg/s in hard X-rays (20-100 keV) and 5×10^{48} erg/s in the soft gamma-ray (100-500 KeV) interval, the highest seen by INTEGRAL in a blazar and 10 trillion times that of our Galaxy; thus IGR J22517+2218=MG3 J225155+2217 is a gamma-ray lighthouse shining from the edge of our Universe.

Credit: L. Bassani, IASF-Bologna, INAF. Details of this observations are described in [Bassani et al. 2007](#), [astro-ph\(0709.3023\)](#), [Ap.J.Lett. in press](#).