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# An X-ray view of the INTEGRAL/IBIS blazars

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Aim of this work is a broad-band study with INTEGRAL, Swift and XMM-Newton satellites of a sample of 9 blazars (7 FSRQ and 2 BL Lac) with redshift up to about 4. The spectral analysis has shown clear evidence of a flattening of the continuum towards the low energies ( $E < 3$  keV observer frame). This behaviour is well reproduced both with an absorbed power-law model ( $N_H \sim 10^{20} - 10^{23} \text{ cm}^{-2}$  in the rest-frame of the sources) or a broken power-law continuum model (with an energy break below 3 keV in the observer-frame). No Compton reflection features, Fe  $\alpha$  line and hump at high energies, have been detected, with the exception of the source IGR J22517+2218 that shows the presence of a weak iron line. In this work we also investigate a possible correlation between the absorption column density  $N_H$  and the red-shift. We confirm the existence of a  $N_H$ - $z$  trend, with the higher absorption at  $z > 2$  for a larger sample compared to previous results. The distribution of the  $N_H$  and the photon index  $\Gamma$  is also presented. The hard X-ray data allow us to detect highly absorbed sources (with  $N_H \geq 10^{23} \text{ cm}^{-2}$  in rest-frame of the source) characterized by photon index distribution peaked at harder values ( $\Gamma \sim 1.4$ ) with respect to that obtained with XMM data only ( $\Gamma \sim 2$ ).

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