

S18a X-ray bright optically faint AGNs found in XMM-Newton and Subaru Hyper Suprime-Cam surveys

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We present a new sample of X-ray bright optically faint active galactic nuclei selected by combining XMM-Newton and Subaru Hyper Suprime-Cam surveys. 53 X-ray sources satisfying i -band magnitude fainter than 23.5 mag and X-ray counts with EPIC-PN detector larger than 70 are selected from 9 deg² in the XMM-XXL field, and their spectral energy distributions (SEDs) and X-ray spectra are analyzed. 46 objects with an X-ray to i -band flux ratio $F_X/F_i > 10$ are classified as extreme X-ray-to-optical flux sources. SEDs of 48 among 53 are represented by templates of type 2 AGNs or starforming galaxies and show signature of stellar emission from host galaxies in the optical in the source rest frame. X-ray spectra are fitted by an absorbed power law model, and the intrinsic absorption column densities are modest (best-fit $\log N_H = 20.5 - 23.5 \text{ cm}^{-2}$ in most cases). The absorption corrected X-ray luminosities are in the range of $6 \times 10^{42} - 2 \times 10^{45} \text{ erg s}^{-1}$. 20 objects are classified as type 2 quasars. The optical faintness is explained by a combination of redshifts (mostly $z > 1.0$), strong dust extinction, and in part a large ratio of dust/gas.