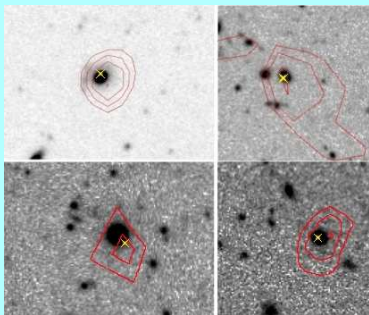


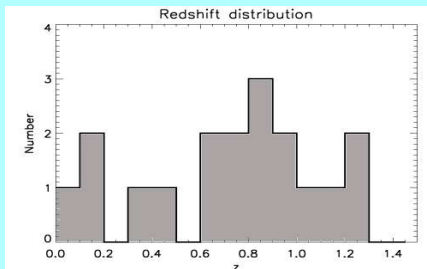
The Lockman Hole has become a selected window in the sky due to its deep coverage both in the X-rays with *XMM* and mid-IR with *ISO* and the extensive multiwavelength coverage available. We had derived spectral energy distributions for the mid-IR emitting X-ray population and constrained the contribution of accretion power to the IR cosmic background.

In the framework of the unified scenario for AGN, an important infrared (IR) emission is expected from reprocessed energy of the central black hole by dust and gas. The Lockman Hole (LH) represents one of the largest area covered with both deep X-rays ($f_{[0.5-2.0]}=2 \times 10^{-16}$ cgs) and mid-IR observations ($S_{15}=0.2$ mJy at $15\mu\text{m}$). The analysis of this datasets has provided 58 common (X-ray-IR) emitters with low probabilities of random association ($<0.1\%$). This sample doubles the amount of previously known X-ray-mid-IR emitters in this field and gives a direct measure of the accretion power importance in the Cosmic Infrared Background



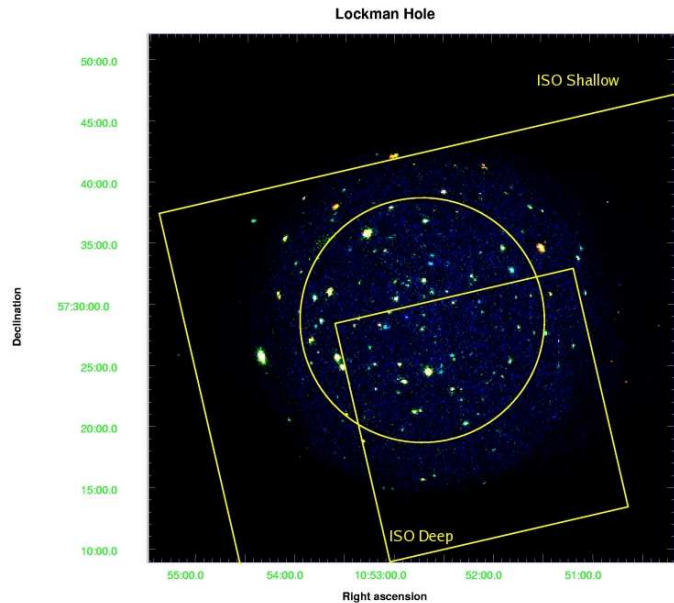
R-band images of *XMM-ISO* sources. Red contours come from the *ISO* data (3σ , 4σ , 6σ). 'Crosses' symbols indicate the center of the X-ray sources.

The spectroscopy is ongoing and presently complete at 40% level with a mean redshift of 0.95.



Redshift distribution of the already identified fraction of X-ray-IR emitters in the LH ($\langle z \rangle \sim 0.95$).

The physical nature of the sources and their evolution with cosmic time can only be understood by comparing the overall source SEDs with well known local templates (e.g. Circinus, NGC 6240, etc). Thanks to the extensive multiwavelength coverage available in the LH, the spectral energy distribution reconstruction has been possible for a large fraction of our population probing population changes for different classes of objects (type-I & II AGN, starburst, etc).



X-rays 'real-color' image of the combined PN and MOS images (~ 800 ksec) in the Lockman Hole. Overlaid squares represent the area covered by the shallow and deep *ISO* surveys at $15\mu\text{m}$. Circle corresponds to the highest X-ray exposure region of 10 arcmin.

