An important part of the observatory science of SVOM will certainly include studies at high energies with ECLAIRs, MXT, VT and the GFTs of the emission from persistent and transient Active Galactic Nuclei (AGNs). Photons emitted by the disk around the central super massive black hole are inverse Compton upscattered on relativistic electron plasmas in the vicinity, e.g. in a corona partially covering the disk. Some AGNs develop powerful jets rising perpendicular to the accretion disk accelerating particles up to relativistic speeds. Thus they are divided into different classes, based on the angle of the line of sight with respect to the accretion disk and intrinsic absorption, and whether or not they exhibit a jet. AGNs are the most luminous persistent objects in the universe.

ECLAIRs is going to open a new window on AGN large area surveys, as it will cover the 4–150 keV energy range with unprecedented sensitivity. Although there will be more sensitive all-sky surveys below 10 keV (e.g. eROSITA) and above 20 keV (Swift/BAT, INTEGRAL IBIS/ISGRI), the ECLAIRs sensitivity between 10 and 20 keV will be crucial to study the inverse Compton scattering spectra of the accretion disk in AGNs. The capabilities of the narrow field instruments will be used to study AGN in outburst, in multi-wavelength campaigns, or to clarify the nature of an object.

The whole survey sample will give us the average Compton reflection fraction and thus will be an important input to determine the sources of the cosmic X-ray background in this energy range. It has to be noted that missions like NuSTAR are determining the contribution of AGN to the CXB in a similar energy range (6-70 keV), but only in pencil-beam surveys and thus at higher redshifts. The study of the CXB in the local Universe can only be done using wide field surveys like the one performed by ECLAIRs.

SVOM's all-sky survey will also allow to pick up transient AGNs, such as blazars, Seyfert galaxies in high state, and tidal disruption events in which dormant AGN cores are revived by infalling matter. The narrow field X-ray instrument MXT on-board SVOM will allow to follow-up on AGN outbursts and also to provide a means of identification of X-ray counterparts to optical AGN candidates as they will be seen in the VT. This will be vital in view of the deep all-sky survey telescopes operating during the SVOM mission lifetime, such as the LSST and Euclid. Their multi-band photometric data will allow to pick out candidates for so far unknown transient X-ray AGNs, either blazars in outburst or Seyferts which show significant brightening, as we have seen for several Seyfert 2 galaxies, and from radio galaxies like Centaurus A and Pictor A. The GFT network will be able to provide simultaneous optical spectra with information about the broad and narrow line regions and the underlying continuum from the accretion disk of the AGNs.

Since the emission from blazars is often found to vary simultaneously across the spectrum, wide-field instruments like those provided by SVOM are particularly useful in their study because they can be used to trigger MWL campaigns when a blazar enters a flaring state. This is of particular interest to observers at very-high energies. Blazars are known to be extremely variable in the gamma-ray regime and most VHE observatories reserve significant fractions of their telescope time to follow-up blazar flares. In this way, MWL campaigns can

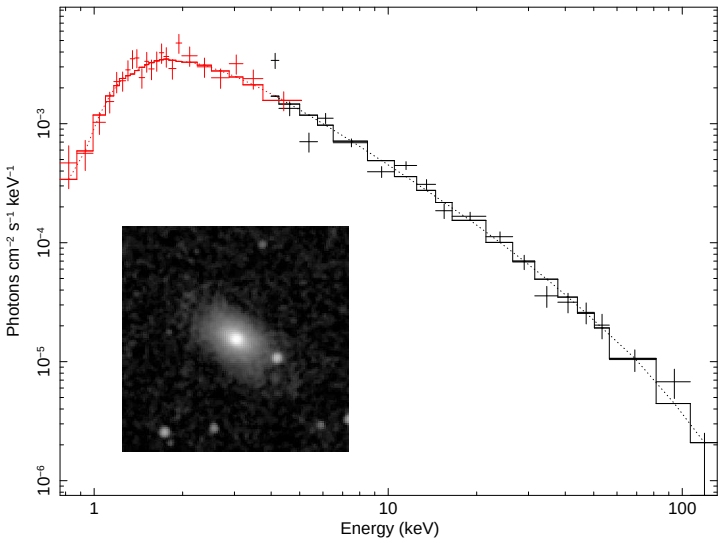

Figure 1: Simulated 10 ksec SVOM/MXT observation of the absorbed Seyfert 1.9 galaxy MCG-5-23-16, combined with the expected 1-year spectrum from ECLAIRs. The cut-off in the spectrum at Ecut = 72 keV and the absorption in the line of sight can be determined with an accuracy of 10%. The optical image gives an impression of a SVOM/VT observation of this source (based on a 2MASS image; Skrutskie et al. 2006, AJ, 131, 1163).

be triggered when a known blazar enters into an active state. In addition to triggering such MWL campaigns, the SVOM instruments and the GFT will be used to provide accurate measurements of the spectral energy distribution of high-state blazars.