Mapping the active Universe with eROSITA

Mara Salvato
on behalf of the eROSITA consortium

Max Planck institute for extraterrestrial Physics,
Giessenbachstr. 1, Garching, D-85748
email: `mara@mpe.mpg.de`

Abstract. eROSITA (extended Röntgen Survey with an Imaging Telescope Array) is the core instrument on the Russian Spektrum-Röntgen-Gamma (SRG) mission which is current scheduled for launch in Q4 2014. eROSITA will perform a deep survey of the entire X-ray sky. In the soft band (0.5–2 keV), it will be about 30 times more sensitive than ROSAT, while in the hard band (2–8 keV) it will provide the first ever true imaging survey of the sky. The design driving science is the detection of large samples of galaxy clusters up to redshifts z ∼ 1, in order to study the large scale structure in the Universe and test cosmological models including Dark Energy. In addition, eROSITA is expected to yield a sample of about 3 million active galactic nuclei, which is bound to revolutionize our view of the evolution of supermassive black holes and their impact on the process of structure formation in the Universe. The survey will also provide new insights into a wide range of astrophysical phenomena, including isolated Neutron Stars and Black Holes, X-ray binaries, active stars and diffuse emission within the Galaxy, as well as more exotic ones such as gamma-ray bursts, tidal disruption of stars in galactic nuclei and binary black holes. In this talk I presented the main characteristics of the mission and focus on the scientific drivers for extragalactic all-sky surveys of AGN. All what was presented at the Symposium (plots, simulations, expected numbers of various kind of sources –QSO, obscured and CT AGN– their properties and evolution with redshift) can be found in the official eROSITA Science Book (Merloni *et al.*, 2012).

Keywords. astronomical databases:surveys, galaxies: clusters: general, cosmology: theory, galaxies: nuclei, quasars: supermassive black holes

---

Reference

A. Merloni, P. Predehl, W. Becker, *et al.* 2012, *arXiv:1209.3114*