



# X-RAY ASTRONOMY 2019

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## The connection of star-forming rates in galaxies with black hole accretion rates of AGNs

*Friday, 13 September 2019 18:48 (2 minutes)*

An important problem in extragalactic astronomy concerns the influence of the presence of active nucleus (AGN) on the large-scale processes in the host galaxy and the correlation between the evolution of the host galaxy and the supermassive black hole (SMBH) in its centre. This connection between galaxies and SMBHs is suggested by the observed tight correlation between the evolution of star-formation rates (SFRs) and AGN activity. But the complexity of separation the radiation of the AGNs from that of the host galaxies over a wide range of redshift and in different wavebands remains one of the essential problems in this topic.

The identification of AGNs in large digital sky surveys is further complicated due to the radiation contamination by star-forming regions and other objects in the host galaxy. The solution of this issue requires the adoption of various selection criteria (and their combination) based on the properties of AGN emission in different wavebands, e.g. optically obscured AGNs can be identified only from their radiation in mid-infrared and X-ray bands.

We present the analysis and correlations of AGNs identification methods in X-ray full, soft and hard bands using the data from XMM-Newton Serendipitous Source Catalogue (3XMM-DR8). For determination of the black hole accretion rates and studying of its correlation with SFRs, it was used the values of stellar mass and star-formation rate of the host galaxies of X-ray selected AGNs from the 8th Data Release of Sloan Digital Sky Survey (SDSS DR8) performed by MPA-JHU group (galSpec catalogue).

### Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

### Affiliation

University Federico II in Naples

**Primary author:** TORBANIUK, Olena (Department of Physics "E. Pancini", University Federico II in Naples)

**Co-authors:** PAOLILLO, Maurizio (Istituto Nazionale di Astrofisica (INAF)); Prof. LONGO, Giuseppe (Istituto Nazionale di Astrofisica (INAF))

**Presenter:** TORBANIUK, Olena (Department of Physics "E. Pancini", University Federico II in Naples)

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