
X-ray flux in the SED modelling: An application of X-CIGALE in the XMM-XXL field

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Abstract

A number of physical processes take place inside galaxies and affect their formation and evolution. These processes are also responsible for the multiwavelength emission of these systems. Additionally, most, if not all, galaxies host a supermassive black hole (SMBH) at their centre. These SMBHs may become active when material is accreted onto them (Active Galactic Nuclei, AGN). It has been found that SMBHs and their activity also play an important role in galaxy evolution. X-ray emission is a trademark of the AGN activity. The multiwavelength emission of galaxies can be studied by constructing and modelling their full spectral energy distribution (SED). Although, different approaches and algorithms have been developed, only a handful of them (e.g. CIGALE) include an AGN component in their SED fitting process and therefore can disentangle the (IR) contribution of AGN to the total (IR) galaxy emission. Furthermore, despite the wealth of information about AGN encoded in X-rays, SED fitting algorithms did not include X-rays in their modelling process. X-CIGALE, is built upon the SED code of CIGALE and implements important new features: the code accounts for obscuring material in the polars of AGN and has the ability to fit X-ray fluxes. In this talk, I will present the improvements these new additions bring in the code's efficiency on SED decomposition, using ~ 2500 spectroscopic, X-ray AGN in the XMM-XXL field. This is one of the largest X-ray samples available, with wide luminosity baseline that extends to high luminosities. The ability of X-CIGALE to include X-ray information in the SED fitting process can be instrumental for the optimal exploitation of the wealth of data that current (eROSITA) and future (ATHENA) X-ray missions will provide us.

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