ABSTRACT - ORAL CONTRIBUTION

AGNFITTER: A BAYESIAN MCMC APPROACH TO FITTING SPECTRAL ENERGY DISTRIBUTIONS OF AGN

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I will present AGNfitter, a publicly available open-source algorithm implementing a fully Bayesian Markov Chain Monte Carlo method to fit the spectral energy distributions (SEDs) of active galactic nuclei (AGN) from the sub-mm to the UV, allowing one to robustly disentangle the physical processes responsible for their emission. AGNfitter makes use of a large library of theoretical, empirical, and semi-empirical models to characterize both the nuclear and host galaxy emission simultaneously. The model consists of four physical emission components: an accretion disk, a torus of AGN heated dust, stellar populations, and cold dust in star forming regions. AGNfitter determines the posterior distributions of numerous parameters that govern the physics of AGN with a fully Bayesian treatment of errors and parameter degeneracies, allowing one to infer integrated luminosities, dust attenuation parameters, stellar masses, and star formation rates. We tested AGNfitter's performace on real data by fitting the SEDs of a sample of 714 X–ray selected AGN from the XMM–COSMOS survey, spectroscopically classified as Type1 (unobscured) and Type2 (obscured) AGN by their optical-UV emission lines. We find that two independent model parameters, namely the reddening of the accretion disk and the column density of the dusty torus, are good proxies for AGN obscuration, allowing us to develop a strategy for classifying AGN as unobscured (Type1) or obscured (Type2) AGN, based solely on an SED-fitting analysis.

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