

EXPLORING THE SPECTRA OF ACTIVE GALACTIC NUCLEI FROM THE GAMA DATABASE

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Active galactic nuclei (AGN) are powered by an accreting supermassive black hole (SMBH) and emit strong continua and emission lines. One important parameter which can be estimated from the AGN broad emission lines, is the mass of the SMBH. On the other hand, the SMBH mass is also known to be correlated with the properties of the host galaxy's bulge. In this work we aim to shed light on the known co-evolution of the SMBH and its host galaxy by studying these correlations.

For this analysis we consider a sample of broad-line AGN (i.e. type 1 AGN) drawn from the Galaxy And Mass Assembly (GAMA) survey, which consists of $\sim 300,000$ galaxies down to $r < 19.8$ mag, providing a photometric and spectroscopic dataset with outstanding value. Although the GAMA survey was designed to study galaxies, it also contains a fraction of AGN. In this work we select a sample of AGN with both broad emission lines in their spectra and existing photometric decompositions of their host galaxies. The AGN spectral modelling and parameter extraction is done using the multi-component FANTASY code. The SMBH mass is obtained from the AGN spectral parameters and compared to the host galaxy's bulge properties. Here we present our preliminary results of the SMBH mass estimates in type 1 AGN from the GAMA survey and their correlations with the host galaxy properties. The results are part of a master thesis conducted at the Hamburg Observatory of Universität Hamburg.