

Katarzyna Rusinek - Radio bimodality of Swift/BAT AGNs and SDSS quasars

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The radio-loudness of an Active Galactic Nucleus (AGN), defined as the ratio of its radio luminosity to its optical luminosity, indicates the existence of radio-quiet (RQ) and radio-loud (RL) objects, the latter of which represent 10% of sources. However, there is a clear division in the field - some studies push for a strong bimodality in the distribution of radio-loudness while others claim a smooth distribution of this quantity. The lack of consensus on this topic may result from selection methods such as limits in the optical magnitude and radio flux and/or the estimation of the radio luminosity - should we account for the extended radio structure or stick to the core emission only?

Taking all of the above into account we decided to study the radio bimodality in two samples with well defined black hole masses (M_{BH}) and Eddington ratios (λ_{Edd}), and by having all the objects selected using the same criteria. Our preliminary results indicate that: (1) there is an explicit bimodality in the radio-loudness distributions in both populations; (2) the RL fraction of AGNs accreting at moderate rates is larger than of quasars. In my presentation I will focus on finding the main features and mean properties of radio-loud, radio-intermediate and radio-quiet sources. In addition to that, I will discuss the physical sizes and radio morphologies of each of the samples by including the distinction between compact and extended radio morphologies as a parameter.

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