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Broad-band properties of flat-spectrum radio-loud narrow-line Seyfert 1 galaxies

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We studied a sample of 42 radio loud narrow-1ine Seyfert 1 galaxies (RLNLS1s) by using all the available multiwavelength observations and the information in literature. The masses of the central black holes are in the range $\sim 10^{6-8} M_{\odot}$, smaller than blazars, while the accretion luminosities span from ~ 0.01 to $\sim 0.49 L_{\rm Edd}$, with an outlier at 0.003, similarly to quasars. We detected 90% of the sources in X-rays and 17% at γ rays. We found hourly variability at high energies. The study of the spectral energy distribution revealed dramatic spectral and flux changes in some sources, suggesting an interplay between the relativistic jet and the accretion disk. The calculated jet power are within the interval $10^{42.6-45.6}$ erg s^{-1}, generally lower than quasars and BL Lac objects, but partially overlapping with the latter population. Once normalised by the black hole mass, according to the theory by Heinz and Sunyaev (2003), the jet power of the three types of AGN are consistent with each other. This indicates that, despite the observational differences, the central engine of RLNLS1s is quite similar to that of blazars. The historical difficulties in finding radio-loud narrow-line Seyfert 1 galaxies might be due to their low power and to intermittent jet activity.

Reference: Foschini et al., 2015, A&A, 575, A13

Author: Dr FOSCHINI, Luigi (National Institute for Astrophysics - INAF)

Presenter: Dr FOSCHINI, Luigi (National Institute for Astrophysics - INAF)

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