

Feedback from AGN: The Kinetic/Radio Luminosity Function

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We have measured the probability distribution function of the ratio $R_X = \log L_{1.4}/L_X$, where $L_{1.4}/L_X = \nu L_\nu(1.4 \text{ GHz})/L_X(2\text{--}10 \text{ keV})$, between the 1.4 GHz and the unabsorbed 2–10 keV luminosities and its dependence on L_X and z . We have used a complete sample of ~ 1800 hard X-ray selected AGN, observed in the 1.4 GHz band, cross-correlated in order to exclude FR II-type objects, and thus obtain a contemporaneous measure of the radio and X-ray emission. The distribution $P(R_X|L_X, z)$ is shown in Figure 1. Convolution of the distribution $P(R_X|L_X, z)$ with the 2–10 keV X-ray AGN luminosity function from La Franca *et al.* (2005) and the relations between radio power and kinetic energy from Best *et al.* (2006) and Willott *et al.* (1999) allows us to derive the AGN kinetic power and its evolution. As shown in Figure 1, our results are in good agreement with the predictions of the most recent models of galaxy formation and evolution (e.g., Croton *et al.* 2006), where AGN radio feedback is required to quench the star formation.

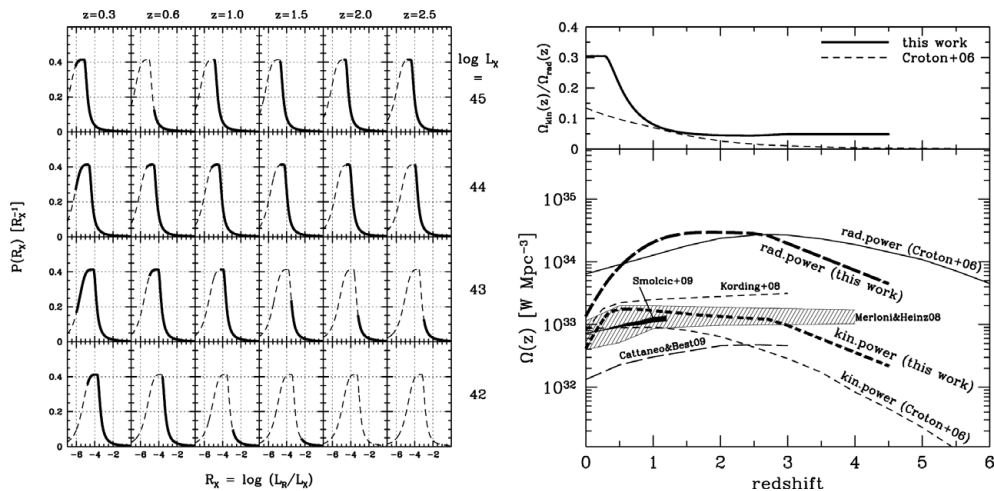


Figure 1. *Left:* $P(R_X|L_X, z)$ distribution in different bins of L_X and z . *Right:* Radiative and kinetic power density as a function of z from this and previous works.

References

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