Constraining the evolution of AGN in cluster cores over the past 7Gyr

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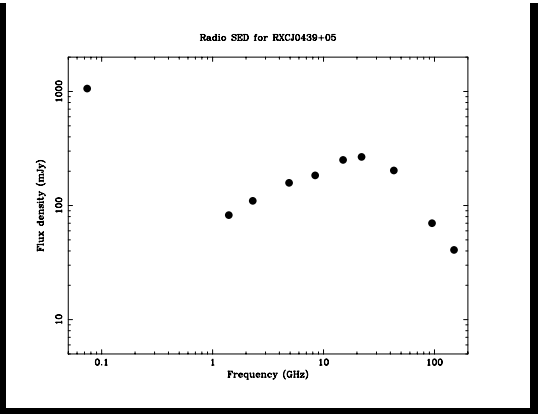
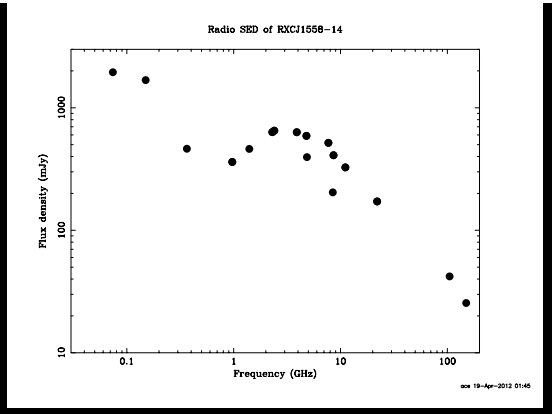
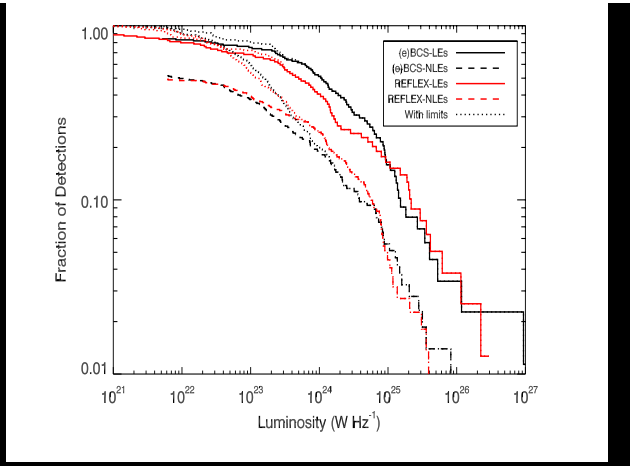
Why Brightest Cluster Galaxies?

BCGs are important in the study of AGN feedback as they are:

a) **The most massive galaxies and hence contain the most massive Black Holes.**
b) **Sit in clusters that frequently show cavities in their ICM excavated by radio jets.**
c) **The cooling of the ICM is strongly suppressed but is sufficient to fuel AGN activity.**







Why X-ray selected clusters?

The need to study a truly representative sample of clusters and not just the most prominent means that we need to select targets on the basis of a property related to the cluster unrelated to the BCG. X-ray selection is one of the most reliable and ROSAT/eROSITA can provide a parent sample of 1,000/100,000 at z<0.8/1.5.

The role of VLASS/JVLA

Using a wide S-band JVLA survey as a starting point, a full 30MHz-4GHz SED can be extracted from LOFAR, MWA, WODAN and EMU. However, the majority of cooling flow clusters have a significant, flat spectrum radio core that only becomes apparent at >5GHz or at milliarcsec scales. This White Paper outlines the case for 5-40GHz JVLA follow-up of a VLASS-selected BCG sample.