

## **Radio SEDs of high-redshift radio galaxies**

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### **Abstract**

The correlation between the redshift of a radio galaxy and the steepness of its observed radio spectral index has proven to be the most efficient way to find the most massive galaxies at high redshift. Since the vast majority of high-redshift radio galaxies are found by exploiting this correlation, it is critical that its origin is understood. The conventional interpretation for the redshift-spectral index correlation requires curved spectral energy distributions that steepen toward higher frequencies. I will discuss the results of multi-frequency radio observations, from the Australia Telescope Compact Array, for 24 high-redshift ( $z > 1$ ) radio galaxies with unusually steep spectral indices. We found that 22 sources (92%) are characterised by a single power law, whilst two sources show some flattening toward higher frequencies; not one source shows any evidence for high frequency steepening. Since massive, steep-spectrum radio galaxies in the local universe usually reside at the centres of rich galaxy clusters, we argue that a natural interpretation for the correlation is that radio galaxies at high redshift are located in environments with densities similar to nearby rich clusters.