OPTICAL AND IR PROPERTIES OF RADIO GALAXIES AS A FUNCTION OF THEIR RADIO POWER

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We compare optical and infrared photometric and spectroscopic properties of high-redshift radio galaxies from the 3CR and B3 surveys. At a given redshift and a fixed restframe frequency, the two samples differ on average by an order of magnitude in radio power, thus providing a fair baseline in radio powerfor a range of redshifts. We present new optical and IR photometry and spectrosopy for a number of B3 sources. We combine these data with the existing corresponding information on B3 and 3CR sources, in order to explore different correlations of source properties with redshift, and among themselves. B3 sources follow the same trend as 3CR's in the K band Hubble diagram, although they do seem to be slightly fainter on average at a given redshift. This trend is slightly more prominent in the Gunn r band. This suggests that some fraction of the observed light in the r and K bands is contributed by an active nucleus, which also powers the radio lobes. The B3's also tend to have lower emission line luminosities than 3CR's at any given redshift, suggesting that there may be a correlation between line luminosity and radio power. Such a correlation is clearly seen and is followed by both samples. It suggests that the UV emission lines are largely powered by the active nucleus, ostensibly a hidden quasar, which is also responsible for the radio emission. We also examine the behavior of the optical and radio PA alignments for the combined B3+3CR data set. We find that high-power and high-redshift subsamples for both B3's and 3CR's show the alignments more prominently, but we still cannot tell which of these variables dominates this effect. This work was supported in part by the NSF PYI award AST-9157412, and the Bressler Foundation.