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The quest for high redshift (z~4) radio galaxies

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We have started an exploratory project aimed at assessing the nature of high redshift radio galaxies (HzRGs) candidates for the next upcoming of Rubin-LSST survey. Powerful radio-loud AGNs represent the most extreme manifestation of nuclear activity and play a pivotal role in galaxy evolution. The epoch at z~4 is essential for studying the processes that connect supermassive black holes with their hosts. However, our knowledge is extremely limited as only a handful of HzRGs at z~4 are currently known. We then started a comprehensive search of HzRG candidates by combining existing large area radio and deep optical surveys. We selected 'g-dropout' sources that are expected to be at z~3.5-4.5. The preliminary results obtained from spectroscopic observations indicate that a large fraction of the sources selected with the 'g-dropout' method are indeed HzRGs. These study will refine the selection criteria to apply the drop-out technique to the LSST data.

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