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MeerKAT view of serendipitously discovered MGCLS GRGs

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Giant radio galaxies (GRGs) are peculiar astrophysical objects because of their exceptionally large linear sizes (>0.7 Mpc). The cause for their huge sizes remains a mystery.
We investigate the spectral behaviour of a small sample of seven (7) GRGs detected from the MeerKAT Galaxy Cluster Legacy Survey (MGCLS). These sources have a minimum linear size of 0.723 Mpc to a maximum linear size of 2.209 Mpc. The spectral index analysis reveals steeper spectral indices around the lobes and flatter spectral indices toward the core for most of the sources. In one of our sources (MKT J021309.59-474414.1), we observe a signature of a backflow while in another (MKT J002659.83-121831.3) a potential episodic activity. We further confirm that one of our sources is most likely to be found in a cluster environment. We detect a new GRG which is the largest in our sample, with a radio morphology that shows complex features. The source is hosted by an elliptical galaxy with a stellar mass of $7.413^{+0.222}_{-0.216} \times 10^{11}$ M .

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