

Are Brightest Cluster Galaxies Special?

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A longstanding question when studying Brightest Cluster Galaxies (BCGs) and their evolution is whether their luminosities are statistical extremes of the luminosity distribution of other cluster member galaxies, or whether their luminosities follow a different, “special” distribution. To explore this question, we use the two Tremaine-Richstone (1977;TR) statistics that sometimes lead to different conclusions about BCG specialness. We run Monte Carlo simulations of galaxy clusters with varying galaxy luminosity functions and BCG properties, and explore the sensitivity of the TR statistics to the adjusted BCG properties. We identify cases where the two statistics lead to different conclusions. The first of the Tremaine-Richstone statistics, which relies on the spread of BCG masses, is more reliable to specialness than the second, which utilizes the spread in the mass gap between the BCG and second ranked galaxy.

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Session Classification: Poster Session + Grad/Career Fair