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Stability of Hickson Groups of Galaxies

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Abstract: In this work we have used the Viril theorem to investigate the dynamical stability of Hickson compact groups of galaxies. The average luminous mass of the galaxies member is approximately 1.3 \times 0^{11} $M_{\odot}$ and average total luminous mass of group is approximately 4.6 \times 0^{11} $M_{\odot}$. The virial theorem has used to estimate the virial mass. The average Virial mass of group of galaxies is approximately 6.3 \times 0^{13} $M_{\odot}$ This is attributed to the presence of large amount of dark matter which is more than 90% in this group. Hickson compact groups of galaxies are unstable system due to the virial to luminous masses ratio.

Key Words: Galaxies, compact groups, luminosity, masses

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