

K04b

Distribution of Force in Gravitationally Clustered System

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We study the distribution of force in gravitational systems through numerical experiments. The data was taken from the N-body simulation in an expanding universe which is expressed in the comoving coordinates. Before clustering, distribution of random force is presented by Holtsmark distribution, and nearest neighbor distribution as comparison. Each distribution is in good agreement between analytical and simulation one. When clustering becomes strong, simulation result showed that contribution of force acting on each galaxies which is generated from all other galaxies is almost entirely due to the gravitational attraction of its the nearest neighbor. This implies that nearest neighbor galactic encounters may play the main role.