

FORMATION OF STRUCTURES OF CD GALAXIES AND GRAVITATIONAL LENSES: COMPUTER SIMULATIONS.

J.ANOSOVA¹, P.M.S.NAMBOODIRI², M.R.DESHPANDE³

1. *National Astronomical Observatory, Tokyo 181, Japan;*

2. *Indian Institute of Astrophysics, Bangalore 560034, India;*

3. *Physical Research Laboratory, Ahmedabad 380009, India.*

The tidal effects of disruption and merger of a massive perturber-quasar on a galaxy cluster have been studied by computer simulations using Aarseth's NBODY2 code. The model consists of a spherical N-body galaxy cluster and a point-mass perturber. A wide range of initial conditions (mass ratio of the galaxy and the perturber, the virial coefficient q of the N-body system, and the pericentric distances of orbits) have been considered.

Two important processes have been observed in a total of 10 independent simulations. For large pericentric distances and virial coefficient $q < 0.5$, the interaction of the galaxy cluster with an equal mass perturber causes only peripheral damage to the cluster. For small pericentric distances and large values of q , the galaxy cluster, interacting with a massive perturber, merges with it just after the perigalactic passage. More than 30% of particles escape from the galaxy and become bound to the perturber, which then exhibits properties of cD galaxies or gravitational lenses.

During the evolution of the system quasar-galaxy cluster, especially after their collision, the formation and disruption of binaries and multiples takes place. In cases where the merging is not taking place, the formation of permanent multiples of large mass is observed. The detailed paper will be published elsewhere (Anosova J.P., Namboodiri P.M.S., Deshpande M.K., 1994).

References

Anosova J.P., Namboodiri P.M.S., Deshpande M.K. 1994, *MNRAS*, submitted.