

Tidal Tails of Globular Clusters

Ki-jeong Yim, Hyung Mok Lee

Astronomy Program, SEES, Seoul National University

We present N-body simulations of globular clusters including gravitational field of the galaxy, in order to study systematically tidal tails caused by the Galactic tidal field. We adopted NBODY6 by Aarseth and modified it to take into account the external gravitational field. The Galaxy is assumed to be composed of central bulge and outer halo. We investigate the cluster of multi-mass models with a power-law initial mass function (IMF) starting with different initial masses, initial number of particles, different slopes of the IMF and different galactocentric distances as well as ellipticities of orbit. We have examined the general evolution of the clusters, the shape of outer parts of the clusters, density profiles and the direction of tidal tails. The general shape of the tidal tails is not sensitive to the computational details. The density profiles appear to become somewhat shallower just outside the tidal boundary consistent with some observed data. The position angle of the tidal tail depends on the location in the Galaxy as well as the direction of the motion of clusters. The tidal tails may be used to trace the orbital paths of globular clusters.