[구ST-17] Generation of triaxial models by adiabatic squeezing

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Non-spherical equilibrium models for stellar systems can be generated by adiabatically squeezing the spherical anisotrtopically. The resulting ellipticity depends on the squeezing parameter that determines the strength of the squeeze. Subsequent application of this method in orthogonal direction one can obtain triaxial models. We constructed a large number of triaxial galaxies in order to provide a guide in generating desired axis ratio easily. We used GADGET2 and phiGRAPE codes for the N-body integration. We perform these calculations for 66 different sets of squeezing coefficients for systems with 50,000 particles. We discuss how the axis ratios depend on the squeezing parameters.

[포ST-18] Gravitational Shocks for the 2-D Fokker-Planck Calculations of Spherical Stellar Systems

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Disk and bulge shocks arise when clusters pass through the galactic disk or the bulge. Shocks inject kinetic energy into the cluster and speed up its disruption. Gnedin, Lee, & Ostriker (1999) incorporated these shocks into an FP model of one (energy) dimension. We extend their recipe and applied it to our two-dimensional (2D) FP model, and compare this analytical model with numerical simulations. The FP model is numerically stable in most cases, but we find that it encounters numerical problems rather often when the effects of tidal shocks are included in the anisotropic FP model. To avoid such a problem, we developed a new integration scheme for a 2D FP equation by adopting an Alternating Direction Implicit method. We use this scheme for our calculations.