noticeable features. It is shown that non-circular forbidden components such as l = 3.2° , l = 1.7° , and Sgr E complexes appeared in the HCN l - V map (Lee 1996) can be well fitted by a model with the axial ratio of the bar potential being 2.5:1 and 3:1. The best fitting viewing angle with respect to the bar major axis lies between 40° ~ 50° . These non-circular components in our simulations are two spiral arm components changing abruptly their orbits from x1 to x2 family. Due to the inflow of the gas within CR, the model predicts the apparent void of gas near CR. This result coincides with the observed sparse resion in HCN l - V map. Such sparse resions have been also seen between low velocity and high velocity envelops in CO l - V maps (Bitran 1986). The main reason for the occurrence of the above mentioned structure is identified as the hydrodynamic collisions beyween clouds having non-circular orbits, which were caused by the perturbation of the rotating bar.

Subject headings : The Galaxy : center - clouds : distribution : SPH : dynamics

Revist to the Two-Component Fokker-Plank Models for Dynamical Evolution of Globular Clusters

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The course of dynamical evolution of post-core-collapse globular clusters is determined by many factors such as initial mass function, the nature and efficiency of energy generation mechanisms, tidal cutoff, and stellar evolution. There have been many efforts in developing more and more complex cluster models including such factors, making analysis and interpretation very difficult. However, studying of simpler models could be more instructive in identifying important physical processes governing the evolution. Two-component models (normal star and degenerate star components) are a simplest realization of clusters with initial mass function because the high mass stars quickly evolve off while low mass stars survive for a long time as main-sequence stars. In the present study we examine the entire evolution of globular clusters using such models that includes both tidal capture and three-body binary heating. The post-collapse clusters are characterized by self-similar structure which can be easily scaled with external cluster parameters. We derive simple criteria for the onset of the gravothermal oscillations in two-component model. Because of the simple physics behind the criteria, we predict that the criteria will be the same even for multi-mass models. We also find two-component model parameters which best fit the result of realistic multi-component model so that one can extrapolate our two-component results to observed clusters.