

ORAL CONTRIBUTION

HIERARCHICAL FORMED YOUNG STAR CLUSTERS - WHERE DO WE STAND?

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We present the latest results from our group in Concepcion. We embarked on an investigation about the stellar dynamics of young embedded star clusters and their survival to gas expulsion (GE), if they do not form as spherically symmetric entities. Instead we are using a fractal initial distribution. In our models we focus on the dynamics of the newborn stars with high precision, using direct N-body codes. Our initial conditions, even if set up with equilibrium velocities, are highly dynamical and we prove that none of the usual static parameters, like for example, the star formation efficiency (SFE) are good predictors of a possible survival of the forming cluster. We developed a theory, using global or semi-global, instantaneous parameters to predict the survivability. We show in our models that, even though for most parts of parameter values the theory shows predictability with a 10% error margin, there are situations in which it is impossible to predict the result using global variables. I will discuss the changes in results, if we include more and more realistic physics into our simple models, i.e., changing from equal-mass particles to stars following an initial mass function (IMF) or using a live background for the gas.

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