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Planetary Systems in Star Clusters

It has been widely accepted that star clusters are the building blocks of galaxies. Over the time they get tidally disrupted and their member stars contribute to the galaxy population. Since the formation of the Solar System can be dated back for more than 5 billion years, this naturally brings up the question that whether or not the Solar System was initially part of the star cluster. In fact, recent observation suggest that planetary systems have difficulty surviving in the star cluster environment, mainly due to the frequent close encounters. In order to investigate the puzzle of planetary system survival rate within star clusters, it is necessary to build up a hierarchical structure of simulation, where planetary systems are embedded in the star cluster. In this poster the modeling of the hierarchical system is presented, discussion of the preliminary results is covered.