DYNAMICS OF YOUNG STARS IN SUPERNOVA REMNANTS

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We carried out a numerical N-body investigation of dynamical evolution of young stellar aggregate embedded into massive interstellar cloud. This cloud is disrupted by the energy of massive stars' radiation and stellar wind as well as of supernova explosions. The gas of the cloud together with intercloud matter forms expanding massive envelope. Gravitational interaction of star association with the circumstellar gas gives some interesting effects, one of which is *dynamical cooling* of young stars. This effect leads to a long time movement of the stars close to the boundary of the envelope. This can mimic a stimulated star formation in the supershell.

The expanding star association can accompany the gaseous envelope for a long time due to the gravitational slowing down of the stars by the massive supershell. Some stars may cross the system a few times, decreasing their energy any time. Finally, from 20% to 50% of stars may form a gravitationally bound cluster under the action of dynamical cooling. In spite of the star formation efficiency may be as low as 10%, this cluster can survive.

Taking into account an effect of stimulated formation of the second generation of stars in the expanding envelope we compare the relative spatial and velocity distributions of the both star populations. In a general case, we are able to distinguish between this two populations by the radial velocity distribution only.

We discuss some mechanisms of formation of OB-associations – as traditional as new one. Plural supernova outbursts play important role in cloud disruption and OB-association expansion. But on the more later stages of the process, massive supershell results in the dynamical cooling effect which force some part of newborn stars to form open cluster.