

Q12b Long-term Evolution of Supernova Remnants in Magnetized ISM

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Evolution of supernova remnants (SNRs) is considered to have a very important influence on molecular cloud formation in the interstellar medium, and is a remarkable interstellar phenomenon. A SNR undergoes the radiative cooling phase after the adiabatic expansion phase, and the expansion speed decreases in the latter phase. However, the further evolutionary stages are little understood theoretically. In this research, the evolution over a long period of SNRs is investigated using numerical simulations. The realistic simulation code was constructed in consideration of effects of interstellar magnetic field and radiative cooling, and global simulations are performed. As results, after the radiative cooling phase, the SNR turns to shrink due to the magnetic pressure in shells, and in part due to decrease in thermal pressure in the hot gas. The converging motion forms a high density cloud in the center of the SNR. The high density cloud has low temperature, and seems to evolve to nearby molecular clouds.