# P108a Massive Core Formation in Magnetized, Turbulent, High-speed Colliding Clouds

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We perform magnetohydrodynamic simulations of magnetized, turbulent, colliding clouds with typical density of molecular clouds to study the effect of high collision speed on massive core formation. We assume two combinations of colliding clouds, Small (3.5 pc) and Medium (7 pc) clouds, and Small and Large (10 pc) clouds, and assume collision speeds in the range of 10 to 40 km $s^{-1}$. The clouds are initially immersed in a uniform magnetic field of 4 µG, and turbulence is generated in them.

For the Small and Medium clouds, less number of massive bound cores form in 20 km $s^{-1}$ than that in 10 km $s^{-1}$. Mass increase of dense cores is small due to short collision duration time in 20 km $^{-1}$. Mass of highly unbound massive cores highly decreases in the expansion phase of the shocked region of which the leading part has already gone through the Medium cloud. This expansion is caused by a large difference between high magnetic pressure in the shocked region and the low pressure of the ambient medium. For the Small and Large clouds, a greater number of massive bound cores form than that of the Small and Medium clouds in 20 km $s^{-1}$. In the Small and Large clouds, longer collision duration time favors gas accretion to dense cores to increase their mass, and this may be the reason for the formation of a greater number of massive bound cores than that of the Small and Medium clouds. For the Small and Large clouds, the number of massive bound cores decreases with higher collision speed. We will discuss a possible relation between massive bound core formation and important parameters like the magnetic field, collision speed, and column density of colliding clouds.