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Triggered cluster formation by the dynamical interaction of the dense molecular gas

Almost all stars in our Galaxy are formed as members of stellar clusters, thus the understanding of cluster formation is one of the crucial issues in astronomy. We have carried out a detailed survey of 14 embedded clusters (young phases of open clusters). They have used the 45m telescope at the Nobeyama Radio Observatory and observed radio waves coming from "dense molecular gas" surrounding these stellar clusters. From this survey, we have discovered that four out of 14 objects are triggered by the dynamical interactions of the dense gas components (e.g., collision). Our results show that there are many more possibilities of the triggered cluster formation by this mechanism, which might occur inside the giant molecular clouds. Moreover, our results give the hints to understand the formation mechanism of open clusters within our Galaxy. In the future, they will investigate the detailed structures of these objects with ALMA (Atacama Large Millimeter/submillimeter Array), which have 100 times the resolution ?.

References

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