

# The role of magnetic field in the formation and evolution of filamentary molecular clouds

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**Abstract.** Recent observations have emphasized the importance of the formation and evolution of magnetized filamentary molecular clouds in the process of star formation. Theoretical and observational investigations have provided convincing evidence for the formation of molecular cloud cores by the gravitational fragmentation of filamentary molecular clouds. In this review we summarize our current understanding of various processes that are required in describing the filamentary molecular clouds. Especially we can explain a robust formation mechanism of filamentary molecular clouds in a shock compressed layer, which is in analogy to the making of “Sushi.” We also discuss the origin of the mass function of cores.

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## References

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