

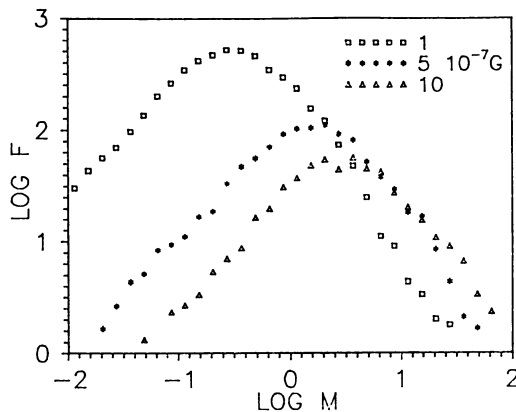
THE SIMULATION OF MOLECULAR CLOUD FRAGMENTATION

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ABSTRACT. The hierarchical fragmentation of a molecular cloud is modeled as a random process by the Monte Carlo method. The mass function of fragments for different values of initial magnetic field is derived.

The present fragmentation model is based on the Monte Carlo simulation of the hierarchical fragmentation proposed by Elmegreen and Mathieu (1983) and computed in our previous papers (Wolf and Vanýsek 1986, Wolf 1988, Wolf 1990). In this study we concerned about the influence of magnetic field on resulting mass function. For the magnetic supported clouds recently Blitz (1990) defines the critical mass in the form $m = 70 (B/10 \mu\text{G})$, where B is magnetic field and m is expressed in solar masses. The changes of mass function for three different values of magnetic field ($1, 5$ and $10 \cdot 10^{-7}$ G) are illustrated on the following picture.



References

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