C09a   **Formation of Dense Filaments by Parker Instability in Galactic Gas Disks**

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We performed two dimensional numerical simulations of Parker instability taking into account the cooling and heating functions of the interstellar medium (Inoue et al. 2006). Our numerical experiment is based on the simulation code "CANS+" in which the HLLD Riemann solver (Miyoshi and Kusano 2005) is used to solve the MHD equations. We found that when magnetic pressure exceeds the gas pressure, long dense filaments are formed at the valley of magnetic field lines by Parker instability. Shock compression of the "spurs" formed by Parker instability triggers the cooling instability, which form cold(T is about 100K), dense(n is about 150 per cubic cm) filaments. The length of the filaments can exceeds 200pc. Initially vertical dense filaments are deformed into inclined filaments when the Ram pressure at the left and right hand side of the filament is different. These results indicate that long-length filamentary and high galactic latitude molecular clouds can be formed by Parker instability.