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Stretched magnetic field equilibrium in non-thermal plasmas

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Highly stretched magnetic field configuration with and without magnetic field component normal to the current sheet is a common feature of solar system plasmas. Its equilibrium structure is of great importance to the study of the stability and dynamics of plasma current sheets and the associated energy release process. In this study we examine the kinetic and magnetohydrodynamic equilibrium of one-dimensional Harris-type magnetic field model as well as two-dimensional tail-like magnetic field configuration. The effects of non-thermal distribution which is a characteristic of collisionless space plasmas on the equilibrium are examined.