

The minimum angle rotation of the magnetic field in the tangential discontinuity and Taylor's helicity constraint

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In the tangential discontinuities at the magnetopause and in the solar-wind, the magnetic field rotates so that the total rotation angle becomes less than 180 degrees, when the directions of the magnetic fields are different at the both ends of the discontinuity. It is shown that this process of the minimum angle rotation of the magnetic field is a consequence of Taylor's helicity constraint or a relaxation process toward the minimum energy state in the low beta plasma.