

M22a **3D MHD simulations of penumbral jet**

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Recently, small-scale jetlike features in sunspot penumbra have been observed by Solar Optical Telescope on board the Hinode. The micro-jets are possibly caused by magnetic reconnection of the so-called interlocking-comb like magnetic configuration in penumbra. In order to explain such a phenomenon, we performed a series of 3D MHD simulations of a current sheet with a strong guide field, similar to the configuration in the interlocking-comb like penumbra. The simulation results show that the jetlike activities similar to the observations. An interesting feature is that the jets produced by the reconnection eventually move along the non-reconnecting component of the magnetic field. This is an intrinsically 3D effect. Our study supports the idea that reconnection between the penumbral filaments can explain the observed jets that are apparently ejected almost parallel to the local magnetic field. This may be one possibility to explain the nature of the penumbral micro-jets.