

Solar photospheric jet-like structures formed by slow shock

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Jet phenomena with a bright loop in their footpoint have been observed in the solar corona and chromosphere, and these are called anemone jets. These jets are formed by magnetic reconnection, and from the scale universality of magnetohydrodynamics (MHD), it can be expected that anemone jets exist even in the solar photosphere. However, it is not obvious whether jets can be generated by magnetic reconnection even in the solar photosphere where magnetic energy is not dominant. To verify whether anemone jets exist in the solar photosphere, we perform 3D MHD simulation including gravity with the solar photospheric parameter. As a result of the simulation, jet-like structures are formed by magnetic reconnection even in the solar photosphere. We find this jet-like structures are caused by slow shock formed by reconnection and propagating roughly in the direction of the background field. In this talk, we will introduce the formation mechanism of this jet-like structure.

Keywords: magnetic reconnection, slow shock, solar jet, solar photosphere