Session 2

Velocity and Magnetic Field of Outflows from a Magnetic Reconnection Event

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Simultaneous multi-line spectropolarimetric observations of a magnetic reconnection event were carried out using the SPINOR instrument at the Dunn Solar Telescope. The magnetic reconnection took place when an emerging bipolar region interacted with the canopy fields of a pore resulting in a microflare. Several jets and multiple Halpha surges were produced during this event. The signatures of jets are observed as three lobed Stokes V profiles in the photospheric lines at 656.922 nm and 853.8 nm due to Fe I, and 853.6 nm due to Si I. The signatures of surges are observed as highly asymmetric intensity profiles of H alpha (656.28 nm) and Ca II 854.2 nm lines as well as in the Stokes V profiles of the photospheric lines. The H alpha surges are clearly seen in the slit-jaw images recorded with a narrow-band filter (UBF) tuned to five different wavelength positions within the H alpha line. We carried out two component inversion of Fe I 656.922 nm using the Stokes Inversion based on Response function (SIR) code to estimate the velocity and magnetic field of the jets and the surges. Further, we used bisector method to estimate the velocities from the intensity profiles of Halpha and Ca II 854.2 nm lines. In this presentation we will discuss in detail about the quantitative estimation of velocity and magnetic field of these reconnection outflows.