Prevalence of Micro-jets from the Network Structures of the Solar Transition Region and Chromosphere

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IRIS observations in the 1330Å, 1400Å and 2796Å passbands have revealed numerous small-scale jet-like features with speeds of ~80-250 km/s from the chromospheric network. These network jets occur in both the quiet Sun and coronal holes. Their widths are often ~300 km or less. Many of these jets show up as elongated features with enhanced line width in maps obtained with transition region (TR) lines, suggesting that these jets reach at least TR temperatures and they constitute an important element of TR structures. The ubiquitous presence of these high-reaching (often >10 Mm) jets also suggests that they may play a crucial role in the mass and energy budgets of the corona and solar wind. The generation of these jets in the network and the accompanying Alfven waves is also consistent with the "magnetic furnace model" of solar wind proposed by Axford & McKenzie (1992). The large speeds (greater than sound speed) suggest that the Lorentz force (perhaps related to reconnection) must play an important role in the generation and propagation of the network jets. We believe that many network jets are the on-disk counterparts and TR manifestation of type-II spicules.