of the integration time of 110 seconds, while the intensity structure remains nearly unchanged during the same time interval.

(3) The correlation length of the intensity is found to be 5.7"(4100 km), at least 3 times larger than that of the velocity structure. This supports a notion that the basic unit of the transition region is a loop-like structure with a size of a few $10^3 km$, within which a number of unresolved, smaller structures are present.

SIMULATION STUDIES OF SOLAR PROMINENCE FORMATION

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Numerical simulations are performed to investigate the dynamic and thermodynamic response of the coronal plasma to photospheric collective motions in relation to solar prominence formation. First, a purely shearing footpoint motion is considered in a rather low-lying magnetic arcade. The expansion of the magnetic field induces adiabatic cooling of plasma, which leads to a thermal instability. The condensed material presses down the field line and creates a dip, which is the signature of Kippenhahn-Schlüter type prominences.

Second, a converging footpoint motion is applied to a single magnetic arcade combined with a shearing motion . In the lower part of the arcade, a current layer is formed and magnetic reconnection takes place. The enhanced density in the magnetic island induces a thermal instability and the condensed material accumulates at the bottom of the island. The prominence thus formed is a typical Kuperus-Raadu type.

Third, a shearing motion is applied around the polarity inversion line between two bipolar regions. The expansion of the two arcades creates a current layer in which magnetic reconnection can occur. The change intemperature and density above the X-line induces a thermal instability. The prominence in this case sits on field line dips like a Kippenhahn-Schlüter type, but will observationally be identified as an inverse polarity type.