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Poster

2. Chromospheric heating and dynamics

Observations of solar chromospheric heating at sub-arcsec spatial resolution

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A variety of dynamic phenomena ranging from slender fibrils ($\sim$100 km) to compact ultraviolet (UV) brightenings or bursts ($\sim 1''$) are associated with the heating of the solar chromosphere. Observations with high spatial and temporal resolutions are required to capture the finer details of these rapidly evolving events, which will provide constraints to chromospheric heating models. Here we report the observations of a chromospheric burst imaged at diffraction-limited spatial resolution of $0.1''$, at a cadence of 7 s obtained with balloon-borne SUNRISE telescope. This burst displays a spatial morphology similar to that of a large-scale solar flare with circular ribbon. It is composed of extended ribbon like features and a rapidly evolving arcade of thin magnetic loop-like features, similar to post-flare loops. Based on magnetic field extrapolations, this heating event is associated with a complex fan-spine magnetic topology. Our observations strongly hint at a unified picture of magnetic heating in the solar atmosphere from some large-scale flares to small-scale bursts, all being associated with such a magnetic topology.