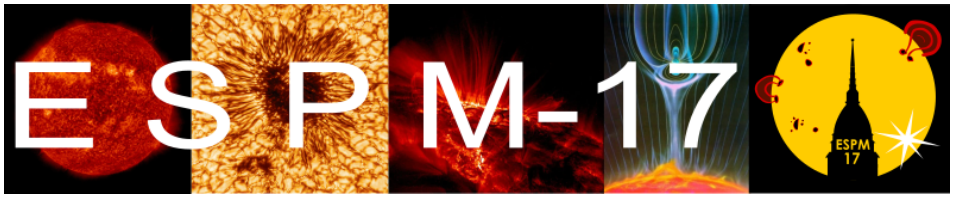

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Combining SDO and Hinode data to simulate a typical Coronal Bright Point in 3D

Understanding the mechanism behind coronal heating remains a fundamental challenge in solar physics. Above small-scale bipolar regions we observe Coronal Bright Points (CBPs) in extreme-UV coronal emission. We analyze 346 CBPs track their lifetimes, shapes, polarities, merging behavior, etc. to select a typical CBP for a 3D MHD simulation.
Most CBPs show magnetic some flux cancellation. The brightest CBPs typically exhibit bipolar fields and longer lifetimes, while weaker polarities produce fainter CBPs. Typical CBPs have lifetimes exceeding 6 hours, supporting the hypothesis that CBP heating primarily occurs through magnetic-energy dissipation, e.g. through relatively steady and gradual reconnection.
We aim to replicate an isolated CBP in a 3D simulation. We need to combine magnetograms from SDO and Hinode. For consistency, photospheric magnetic fields need a sufficiently large fields-of-view, as well as similar resolution. Our overlaying technique enhances the limited Hinode FOV with SDO data with an added high-resolution network.
Later, we may compare MHD simulation results with the really observed CBP. This allows us to improve our understanding of the CBPs heating and to track the coronal plasma dynamics. Coronal Doppler-shifts maps from Hinode/EIS allow us to verify our simulation result.

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