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Case studies of penumbral decay

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High-resolution spectropolarimetric ground-based observations, complemented with data from the space instruments, allow us to investigate the photospheric magnetic and velocity properties of sunspot penumbra during the formation and decay phases. The observed penumbral formation occurs only on one side of the studied region. This preferential location appears to be due to the absence of an overlying magnetic canopy, as derived from potential field extrapolations of the SDO/HMI data. Then, the studied penumbra disappears progressively in both time and space. The progressive disappearance of different penumbral sectors seems to be linked with the presence or absence of overlying canopies. Noticeably, we detect Evershed flows and horizontal fields after the apparent disappearance of the penumbral sectors.

Student poster?

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