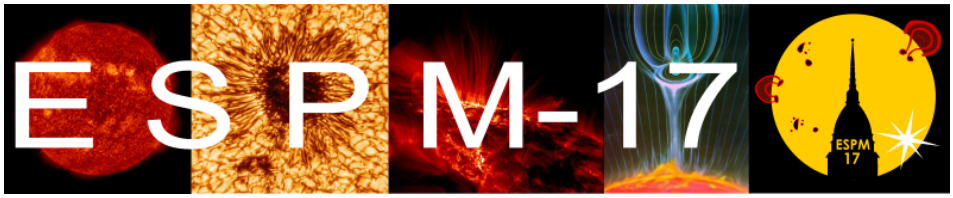


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# Onset of penumbra formation

The formation of penumbrae has been studied by many authors and, yet, many questions remain to be answered. Penumbra formation is a target of opportunity that, due to its relatively fast development, is not common to observe with very high spatial resolution. In this work we present ground-based spectropolarimetric observations of a forming sunspot on the NOAA 11024 recorded with the "Göttingen"Fabry-Pérot Interferometer (GFPI) on 9 July 2009. We tracked the vector magnetic field and line-of-sight velocity in selected regions over a 2-hour period, spanning from the stages preceding formation to fully developed penumbral filaments. We find that each selected region presented a distinctive flow prior to penumbra formation. Despite the influence of projection effects on the retrieval of the plasma parameters, our results indicate that there are no unique flows prior to penumbra formation. However, all the analysed penumbral filaments started forming at the umbral boundary and extended radially outward while exhibiting the Evershed flow right from the beginning of the filament formation.

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