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Kinematics and magnetic properties of a light bridge in a decaying sunspot

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During the evolution of sunspots, the umbral region is sometimes divided into two or more parts by structures called light bridges. The kinematics and magnetic properties of light bridges are still not well understood and high resolution observations can contribute to clarify many of these properties.
High spatial and spectral resolution data of the solar photosphere were acquired by the CRisp Imaging SpectroPolarimeter at the Swedish Solar Telescope on 2011 August 6, relevant to a large sunspot with a light bridge in active region NOAA 11263.
We applied the SIR code to the Fe I line pair at 630.15 nm and 630.25 nm and we obtained maps of velocity, temperature, continuum intensity and magnetic field.
The noteworthy result is that we find upward motion up to −0.9 km s −1 in the dark lane where the light bridge is located between two umbral cores, while the upward LOS velocity is strongly reduced where the light bridge is located between an umbral core at one side and penumbral filaments on the other side.

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