

## Plasma properties of penumbral filaments

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The plasma properties of the penumbral filaments are obtained using the inversion code applied to the data retrieved by the Hinode spectropolarimeter. The results are discussed with respect to the two main models suggesting the origin of the penumbral filamentary structure, the rising flux tube model and the field-free gap model. It seems difficult to rule out (or verify) one of these models on the basis of observations, as the models can have similar stratifications of plasma parameters at the line-forming region of used lines (Fe I 630.15 nm and Fe I 630.25 nm) and eventual differences do not produce different shapes of observed Stokes profiles.