

Magnetic Field Vector Structure of a Sunspot During a Solar Flare

M. Benko and P. Gömöry

Astronomical Institute Slovak Academy of Sciences Tatranská Lomnica 059 60 Vysoké Tatry

contact e-mail: *mbenko@astro.sk*

This poster presents an analysis of spectro-polarimetric data of the sunspot in active region NOAA 13079, acquired on August 13, 2022, using the GREGOR Infrared Spectrograph (GRIS) and the High-resolution Fast Imager (HIFI). The observations targeted photospheric spectral lines (Ca I, Si I) and the chromospheric spectral line (He I). We aim to investigate the magnetic and dynamical properties in the atmosphere above the sunspot, spanning from the photosphere to the chromosphere. A spectral-line inversion technique was employed to infer the magnetic field vector from the full-Stokes profiles. Our objective was to calculate the magnetic properties of the sunspot throughout the solar flare event.