

A new magnetograph system for the observation of the three-dimensional vector magnetic fields of the Sun

Y. Hanaoka

National Astronomical Observatory of Japan(hanaoka@solar.mtk.nao.ac.jp)

We had developed an imaging polarimeter using ferroelectric liquid crystals, and installed it into the Solar Flare Telescope of NAOJ, Mitaka to measure the polarization in the H-alpha line. It realized very high polarization sensitivity, and we can measure full-Stokes Zeeman polarization signals at the chromospheric level with it. On the other hand, the Solar Flare Telescope has been also observing photospheric vector magnetic fields in the Fe 6302 line with a polarimeter using KDPs. Recently we replaced it with another FLC polarimeter, and the polarization sensitivity was improved much. Now we are operating a regular polarimetry observation for both the photosphere and the chromosphere with the high-sensitivity system. It enabled us to observe the three-dimensional evolution of the vector magnetic field of active regions, which is essentially important to study active phenomena on the Sun. Some examples of the polarimetry data taken in the H-alpha and the Fe 6302 lines simultaneously will be presented at the meeting.