M19c HINODE SOT MEASUREMENTS OF THE WEAK INTERNET-WORK MAGNETIC FLUX

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The exceptional angular resolution of the HINODE SOT Spectro-Polarimeter (SP) permits a much clearer view of the weak, mixed-polarity magnetic flux present in quiet regions of the solar photosphere. Stokes spectra in the lines Fe I 630.15 and 630.25 nm and nearby continuum are recorded simultaneously in a dual-beam system. In normal mode, the angular resolution (slit width and spatial pixel size) is 0.16 arcseconds, and polarimetric signal to noise ratio of approximately 1000:1 is reached in 4.8 seconds of integration. Maps have been made of quiet sun at disk center, 45 degree heliocentric angle, and polar limb. From analysis of fully calibrated Stokes spectra, we present the observed properties of the internetwork magnetic flux, including its spatial distribution with respect to the solar convective elements, distributions of sizes and flux, and limits on the intrinsic field strength.