

## **HAO/NCAR HMI Monthly Progress Report, October 2007**

Work continues on implementing a table lookup for the Voigt and Faraday-Voigt functions in order to speed up the HMI inversion code. Using a table with 5000x100 points in frequency and damping parameter, respectively, gives a maximum error less than  $10^{-4}$  with a linear interpolation scheme.

We have also completed the analysis of the polarization calibration datasets taken in air. Long and short sequences yield very similar results for the PCU and HMI optical elements. Differences in the waveplate retardances are found to be due to the day-to-day variations in the oven and box temperatures. These variations fit very well the theoretical predictions. The obtained error matrices for the polarimetric calibration are within specifications. We have also determined a different set of angles that minimize the cross talk between linear and circular polarization in the Doppler camera. This cross talk is below 5% for the full field of view.

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