NON-CONVENTIONAL PROCEDURE OF POLARIMETRY DATA INVERSION IN CONDITIONS OF COMPARABLE FARADAY AND COTTON-MOUTON EFFECTS

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A new procedure for inverting plasma polarimetry data is proposed in this paper. The procedure is based on the fit between a two parameter knowledge-based plasma model, which is using both magnetic and Thomson scattering data, and the polarimetric measurements. In turn the polarimetry system is assumed to measure two angular parameters of polarization: its azimuthal and ellipticity angles.
The inversion procedure under consideration is based on the equations, recently derived for describing the evolution of the angular parameters in weakly anisotropic plasma. The main difference from the approach used in conventional plasma polarimetry comes from the fact that new procedure of inversion is applicable both for weak and for comparable Faraday and Cotton-Mouton effects.