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SEMINAR

Milne-Eddington inversion code for Fe-I 617.33 nm spectral line

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Inversion techniques are the most powerful and sophisticated tool to infer the magnetic and thermodynamical properties of the solar atmosphere from the interpretation of Stokes profiles. The basic idea of any inversion code is to iteratively fit the observed Stokes profiles with the synthetic profiles. The synthetic profiles are generated by solving the polarised radiative transfer equation (RTE) which assumes a model atmosphere. After optimizing the merit function, the best fit model atmosphere is inferred as the model of the atmosphere.

We are developing an inversion code of the radiative transfer equation in Milne-Eddington (ME) approximations. Under ME assumptions the properties of the solar atmosphere are constant with height, except the source function which depends linearly on optical depth. A standard Levenberg-Marquardt least-square minimization method is used to optimize the merit function. The new ME-code, written in IDL, can be used for any photospheric spectral line. To facilitate the comparison, we selected MERLIN inversion code which is a standard inversion code used to invert the spectro-polarimetric data from Hinode.

The inversion strategy of the new ME-code, comparison between new ME-code and MERLIN will be discussed in this talk.

Date: Aug 24, 2015

Time: 16:30 hrs

Venue: USO Seminar Hall