

# **Observing magnetic fields, determination of a lower detection limit**

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**Abstract.** We have made the first attempt to apply the magnetic Doppler Imaging code INVERS10 to study the observational detection limits of magnetic fields using stellar spectra in four Stokes parameters. To do this, we have used the program in its forward mode to simulate the observational data for different configurations of the magnetic field. The examination of the synthetic spectra for a variety of physical parameters of the magnetic configurations allows us to specify the precision and resolution limits for the data required to detect and study different field structures.