OPTICAL ZEEMAN SPECTROSCOPY OF THE $X^3\Delta$, $A^3\Phi$ AND $B^3\Pi$ STATES OF TITANIUM MONOXIDE, TiO

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Optical Zeeman spectroscopy has been performed on transitions between the ground and low-lying excited states of TiO. There has been considerable astrophysical interest in the visible and near infrared bands of TiO, which pervade the spectra of cool stars. [a] Accurate measurement of the tuning rate for spectral features of TiO is required to unveil the magnitude of stellar ambient magnetic fields. Last year, we reported on the laboratory measurement of tuning rates for the magnetically susceptible spectral features of TiO. [b] We have now completed the analysis and extraction of Lande g-factors, which have been used to analyze the structure of the electronic states. Interpretation of the g-factors provides a quantitative measure of the mixing between excited states and comparison has been made to calculations predicting the electronic spectra.

[a] S. V. Berdyugina and S. K. Solanki *Ast. and Astro.* **385**(2), 701-715 2002.

[b] W. L. Virgo, T. C. Steimle, J. M. Brown and A. L. Pilkington. 58th OSU International Symposium on Molecular Spectroscopy (June 2003).