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Progress Report

TEMPERATURE DEPENDENCE OF ATOMIC SPECTRAL LINE WIDTHS FOR NEUTRAL CHROMIUM

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In this work, temperature dependence of the widths for neutral chromium spectral lines have been studied. Different fitting methods have been analyzed to observe the method that will give the best results. Then this method can be used with more confidence to interpolate and extrapolate the theoretical values with different experimental values.

The line widths for nine neutral chromium spectral lines were analyzed and fitted by the power formula as suggested in the work of Dimitrijević *et al.* 2005 and by the quadratic logarithmic formula (Sahal-Bréchot *et al*, 2014). The second analytic expression showed better result even both are three parameters fitting.

After this fitting analysis, we recommend to use of the quadratic logarithmic formula for interpolating or extrapolating widths when values for temperatures are not directly provided in the literature.

We will extend our study to the proton spectral line widths for the data of Dimitrijević *et al.* 2005. For the shifts we will use a quadratic logarithmic fitting formula for the ratio of the shift to the width. Comparison will be done with other fitting formula.

References

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