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Identification of field dwarfs and giants in RAVE

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The second RAdial Velocity Experiment (RAVE) Data Release (DR2) derives $\log g$ values but we present a simpler and cleaner method of identifying dwarfs and giants using only magnitudes, which does not require spectroscopic analysis. We confirm the Bilir et al. (2006) procedure which estimates the number of dwarfs and giants via their positions in the J-V two magnitude diagram by applying it to RAVE DR2. It is effective in estimating the number of dwarfs and giants at $J-H > 0.4$ compared to RAVE's $\log g$ values. For $J-H \leq 0.4$, where dwarfs and subgiants show a continuous transition in the J magnitude histogram, we used the Besancon Galaxy model predictions to statistically isolate giants. The percentages of giants for red stars and for the whole sample are 85% and 34%, respectively. If we add the subgiants, the percentage of evolved stars for the whole sample raises to 59%. For the first time in the literature, we analysed the effect of CHISQ on RAVE's $\log g$ values (CHISQ is the penalised χ^2 from RAVE's technique of finding an optimal match between the observed spectrum and synthetic spectra to derive stellar parameters). Neither the CHISQ values nor the signal-to-noise ratio bias RAVE $\log g$ values. Therefore the method of identifying dwarfs and giants via the two magnitude diagram has been verified against an unbiased dataset.

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