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HgMn stars observed at CASLEO: preliminary results for HR 4817

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Abstract. We present the preliminary results of a spectral analysis of the HgMn star HR 4817. The abundance calculation is obtained by comparing observed with synthetic spectra. We compare the results with our previous analyses of the same star. The abundances are more accurate and we found elements we didn't find in our previous analyses.

Key words: stars: chemically peculiar – stars: abundances – stars: individual: HR 4817

1. Introduction

The stellar atmosphere of HR 4817 was studied using spectra obtained with the EBASIM echelle spectrograph attached to the 2.15 m Jorge Sahade telescope of Complejo Astrónomico El Leoncito. The wavelength coverage is $\lambda\lambda$ 350-900 nm. The spectral reduction were made with IRAF2.12[1]. The resolution is 35 000 and the typical signal-to-noise ratio in the center of the orders is 350-400 (Pintado, Adelman 2003).

The effective temperature and surface gravity were calculated with $uvby\beta$ photometry from SIMBAD. The values obtained are $T_{\rm eff} = 13\,022\,{\rm K}$ and $\log g = 3.72$. We measured the equivalent widths of Fe I and Fe II lines using REDUCE (Hill *el al.*, 1982). The model atmosphere was calculated using ATLAS9 (Kurucz, 1993). First we derived Fe abundances using WIDTH9 for various values of microturbuence. We adopt for further calculations $v_{\rm turb} = 1\,{\rm km\,s^{-1}}$, which gives abundances independent of the equivalent width. We use also REDUCE to measure the rotational velocity, $v \sin i = 15\,{\rm km\,s^{-1}}$. We use SYNTHE to produce synthetic spectra and we compare them with the observed spectra to derive chemical abundances of other elements.

2. Comments

In Table 1 we compare abundances obtained in this work, with those from previous paper.

[1]IRAF is distributed by the National Optical Astronomical Observatories which is operated by the Association of Universities for Research in Astronomy, Inc., under a cooperative agreement with the US National Science Foundation.

Table 1. Chemical abundances

Elem.	This work	Pintado, Adelman (1997)	Elem.	This work	Pintado, Adelman (1997)
C	-3.87	-3.87	Sc	-8.94	-7.72
O	-2.30	-3.06	Ti	-5.60	-5.53
Mg	-5.00	-4.65	Cr	-5.43	-5.43
Si	-4.80	-4.85	Mn	-3.90	-3.99
P	-6.28	-6.28	Fe	-5.00	-4.90
S	-6.09	-5.09	Ga	-5.80	-5.80
Ca	-5.39	-5.40	Y	-7.74	-7.74

The He/H=0.05 is different from our previous work (He/H=0.02), but in this case we use more He lines than before. Lines of O, Co and Pt were found but further analysis is needed for the abundances.

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