

Searching for the depression at 5200 Å in some HgMn stars

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Abstract. Tens of spectrograms of HgMn, normal and Si stars have been obtained at the 1m telescope with a resolution of about 3 Å in the region of 5200 Å. Maitzen depressions were calculated by integration in the g_1 , g_2 and y bands. It has been revealed that the depression in HgMn stars almost the same as in normal stars and much less than in Si-stars.

Chemically peculiar HgMn (CP3) stars (Schneider, 1981; Khokhlova, 1983) are the late B-type main-sequence stars in the temperature region 10000-14000 K. These stars exhibit the existence of Hg, Mn and other overabundances and not significant overabundances of rare earths and Si in comparison with other stars in the same region of temperatures.

The observations were made at the 1m telescope provided with different equipment. At the beginning they were performed with a transparent grating spectrograph (Chountonov G.A., 2000) with a 20 Å resolution, two years later with a classical low resolution grating spectrograph and CCD530x580 (GAD-1) and later with the Universal spectrograph (UAGS) and CCD2Kx2K with a 3 Å spectral resolution. Fig. shows the spectra of the normal star HD 192684, HgMn star HD 22929 and Si-star HD 29925 with a depression of 0.048. One can see from this figure that these spectra give a good presentation of the richness of the spectral region with spectral lines.

The depressions were calculated by integration of stellar spectra in three regions corresponding to Maitzen filters (Vogt et al., 1998) using formula: $a = ((g_1+y)/2-g_2)/((g_1+y)/2)$, where g_1 , g_2 and y are the average intensities of spectra at 5010 Å, 5250 Å and 5450 Å accordingly.

The results: no significant depression was found in 19 HgMn stars in comparison with 6 normal stars. The mean difference is 0.003.

Conclusion. It is very likely that the depression is caused by Si or rare earth elements.

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References

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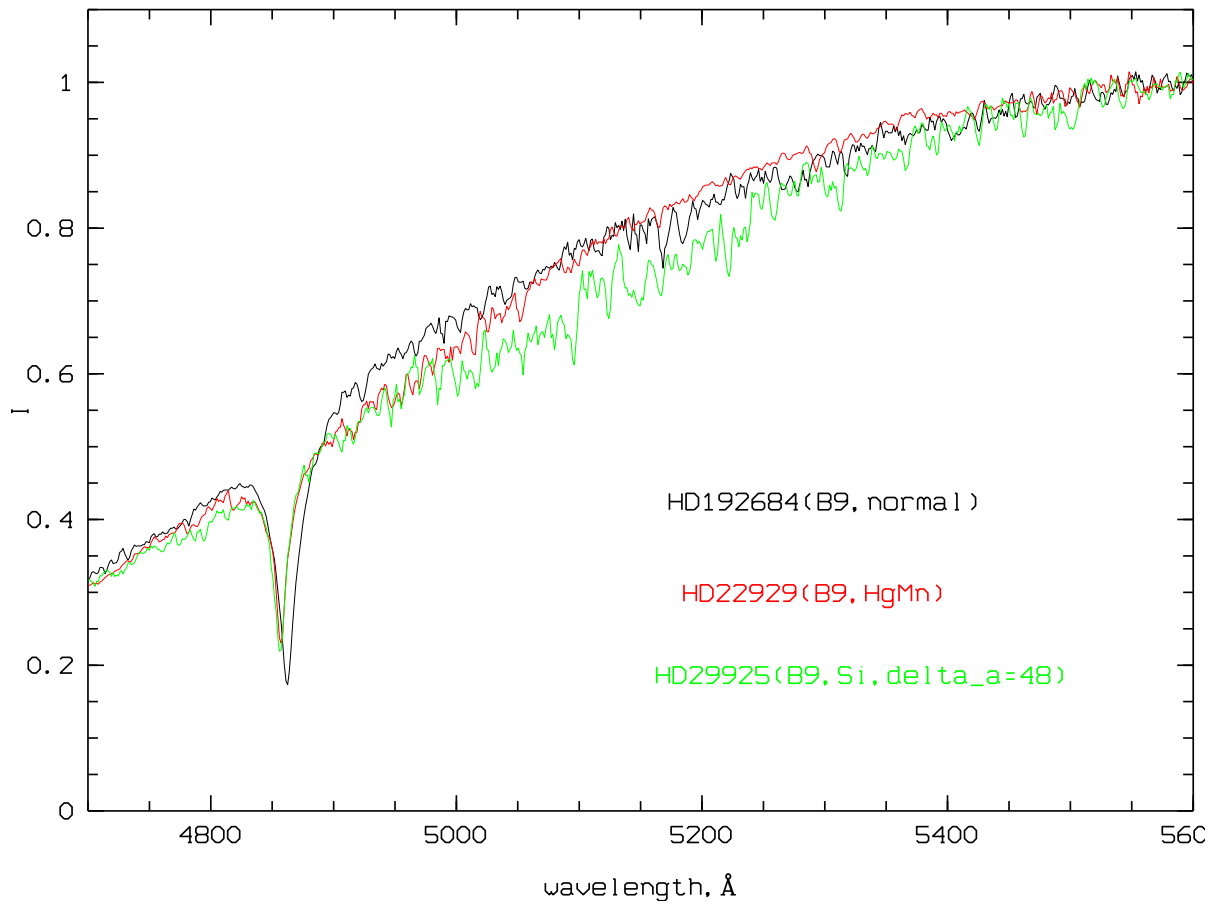


Figure 1: *Spectra of different type stars in the region of 5200 Å depression.*