The surface abundances of HD87240, member of the young open cluster NGC3114.

Vanda Wellenreiter and Richard Monier Observatoire de Paris-Meudon

Introduction

We have determined the abundances of chemical elements in the star HD87240 member of the young open cluster NGC3114 (age around 100MY) using an archival UVES spectrum.

Parameters of HD87240

Before determining the abundances we must compute the atmospheric model and synthesis spectra. In order to do so, that we must determine a few parameters:

- Fundamental parameters of the star:
  - Effective temperature: 13319±250K
  - Superficial gravity: 3.71±0.25dex

  to find these parameters we use Moon and Dworedsky's grid.
- Velocities of the star
  - Radial velocity: -16.861±0.035km/s
  - $V_e$sini= 7.5±1km/s
- Spectrograph resolution: 0.064Å

Then we can compute the atmospheric model with ATLAS so that we can generate a synthesis spectra with SYNSPEC. The atmospheric model is composed of 72 layers in a plane parallel model atmosphere.

We make some assumptions such as:

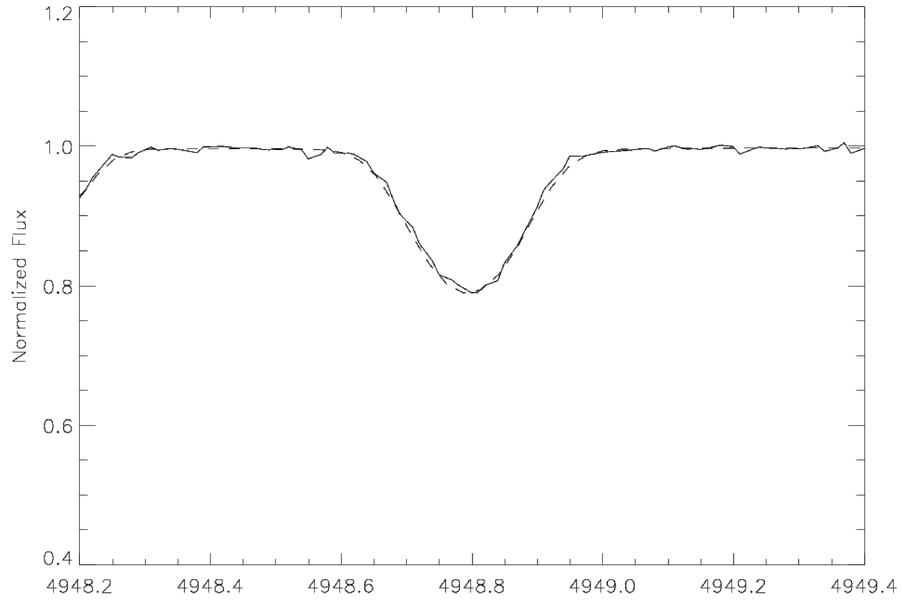
- Local Thermodynamical Equilibrium
- Radiative Equilibrium
- Hydrostatic Equilibrium

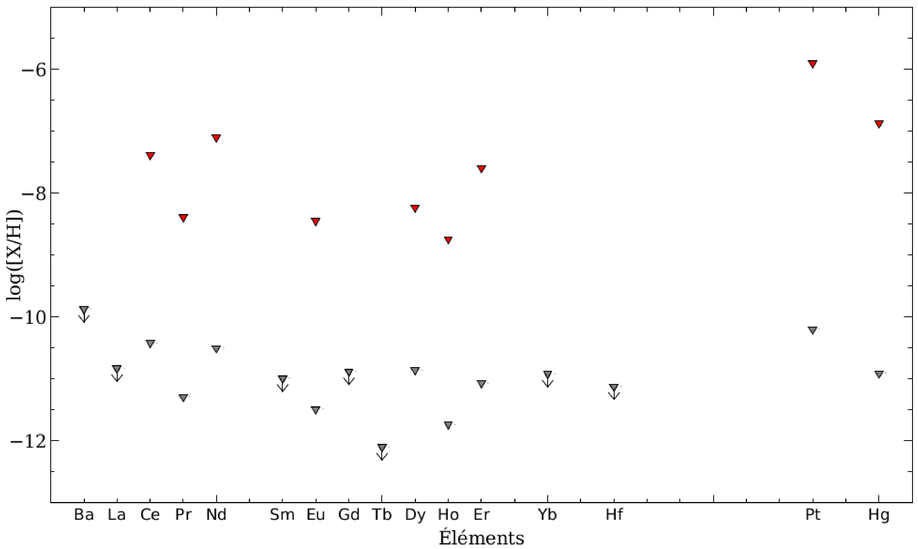
Conclusion

- We find an underabundance for He and large overabundances of S-Y-Zr triad and very large overabundances of most Rare Earths and for the very heavy elements Platinum and Mercury which we compare to previous abundance determination of Saffe et al.(2005).
- The abundance pattern we find definitely shows that HD87240 is a Chemicaly Pecular late B star.
- We believe that stellar spots of Mercury and Platinium possible related to a magnetic field present on HD87240.

Synthesis Spectrum and HD87240 vs Sun

Synthesis spectra with dotted line and HD87240 with unbroken lines.





HD87240 abundances are depicted in red and Sun abundances are depicted in grey.

References

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