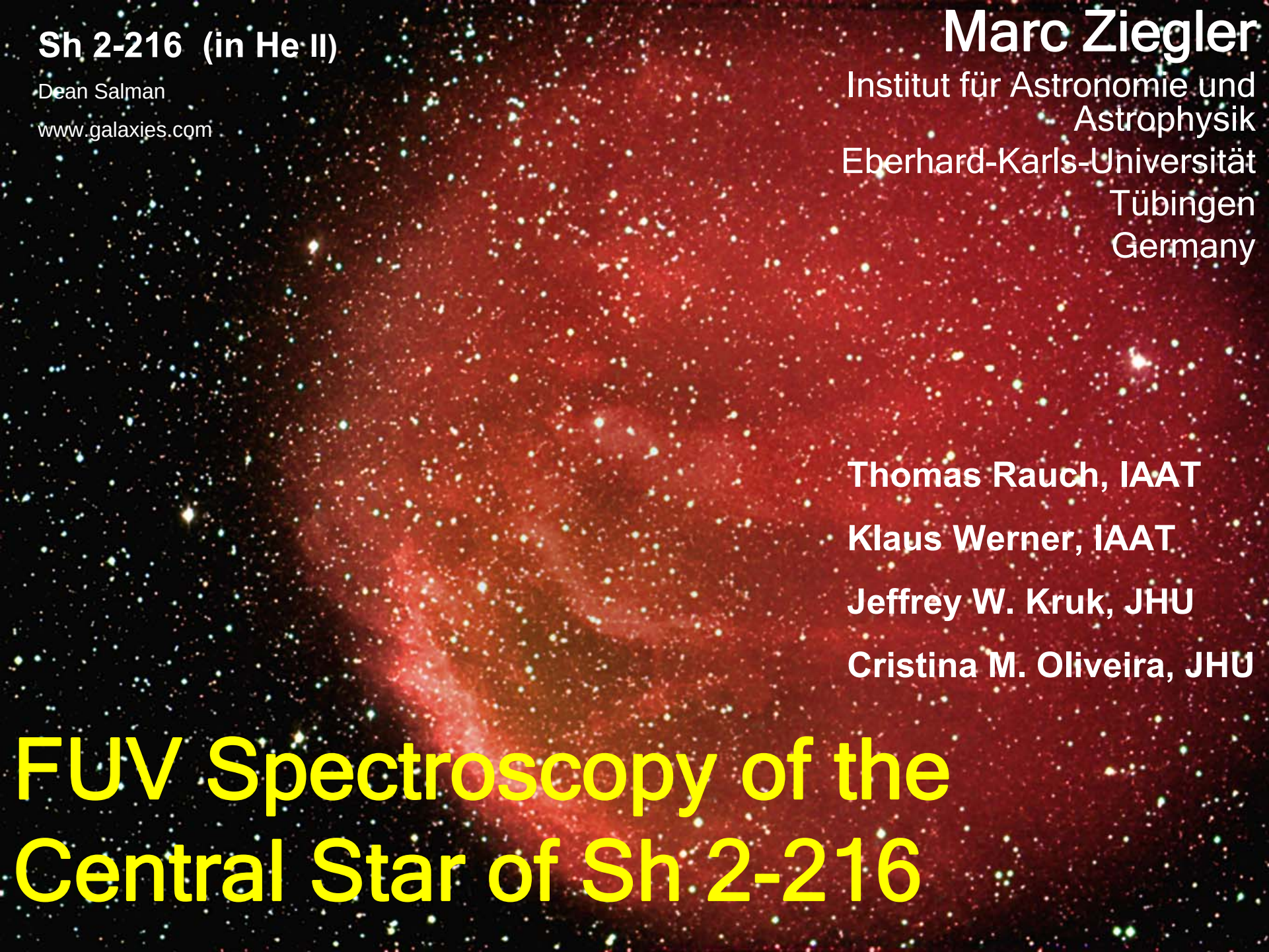

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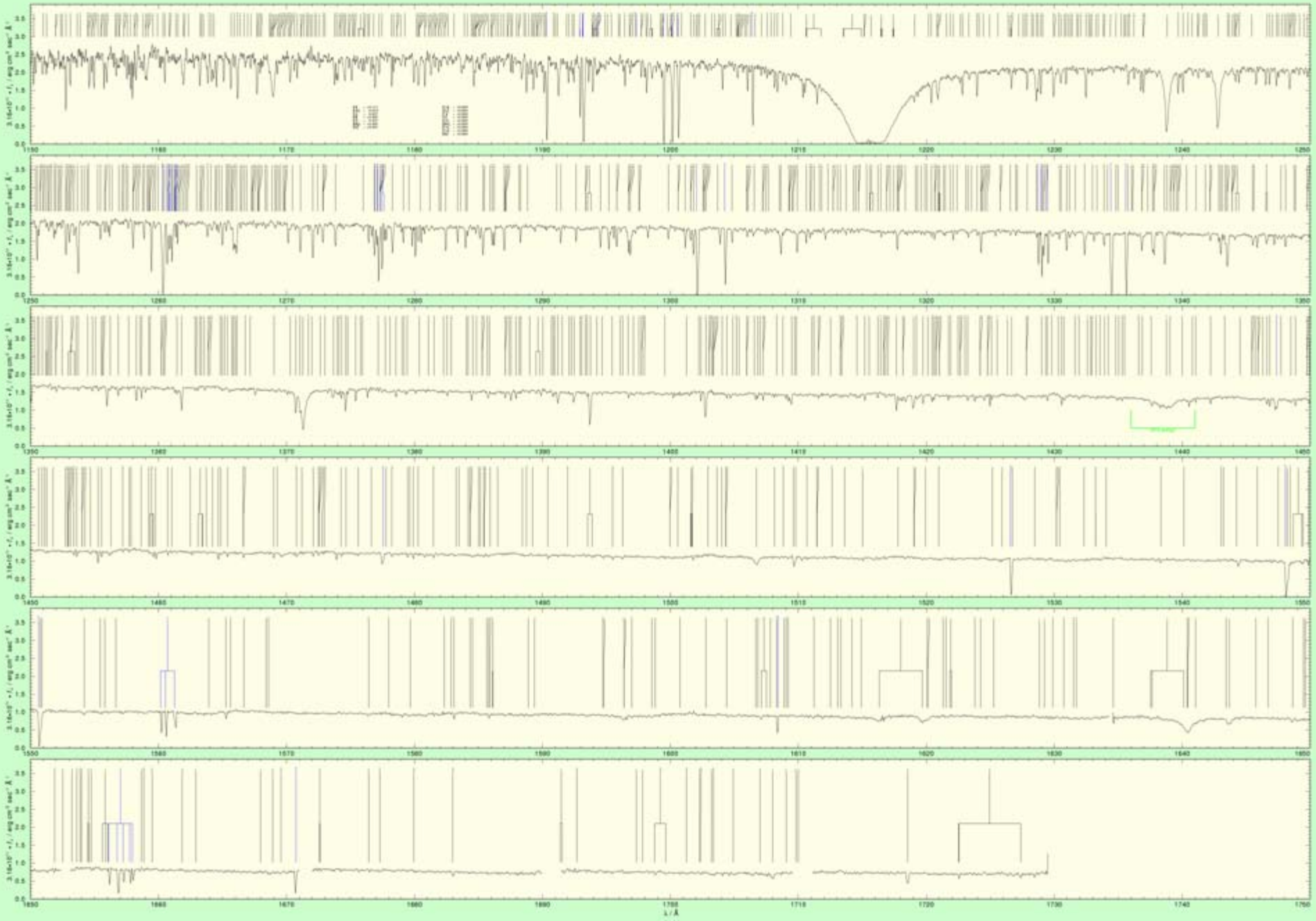
FUV Spectroscopy of the Central Star of Sh 2-216

FUV Spectroscopy of LS V +46°21

- exciting star of Sh 2-216
  - closest PN known, d = 130pc
  - apparent diameter 1.6°
  - LS V +46°21 about 0.2 radii off centre
    - mild interaction with ISM
    - thin disk orbit of low inclination and eccentricity
      - Kerber et al. 2004, A&A, 420, 207

Hα+ [O III]
Dean Salman
www.galaxies.com

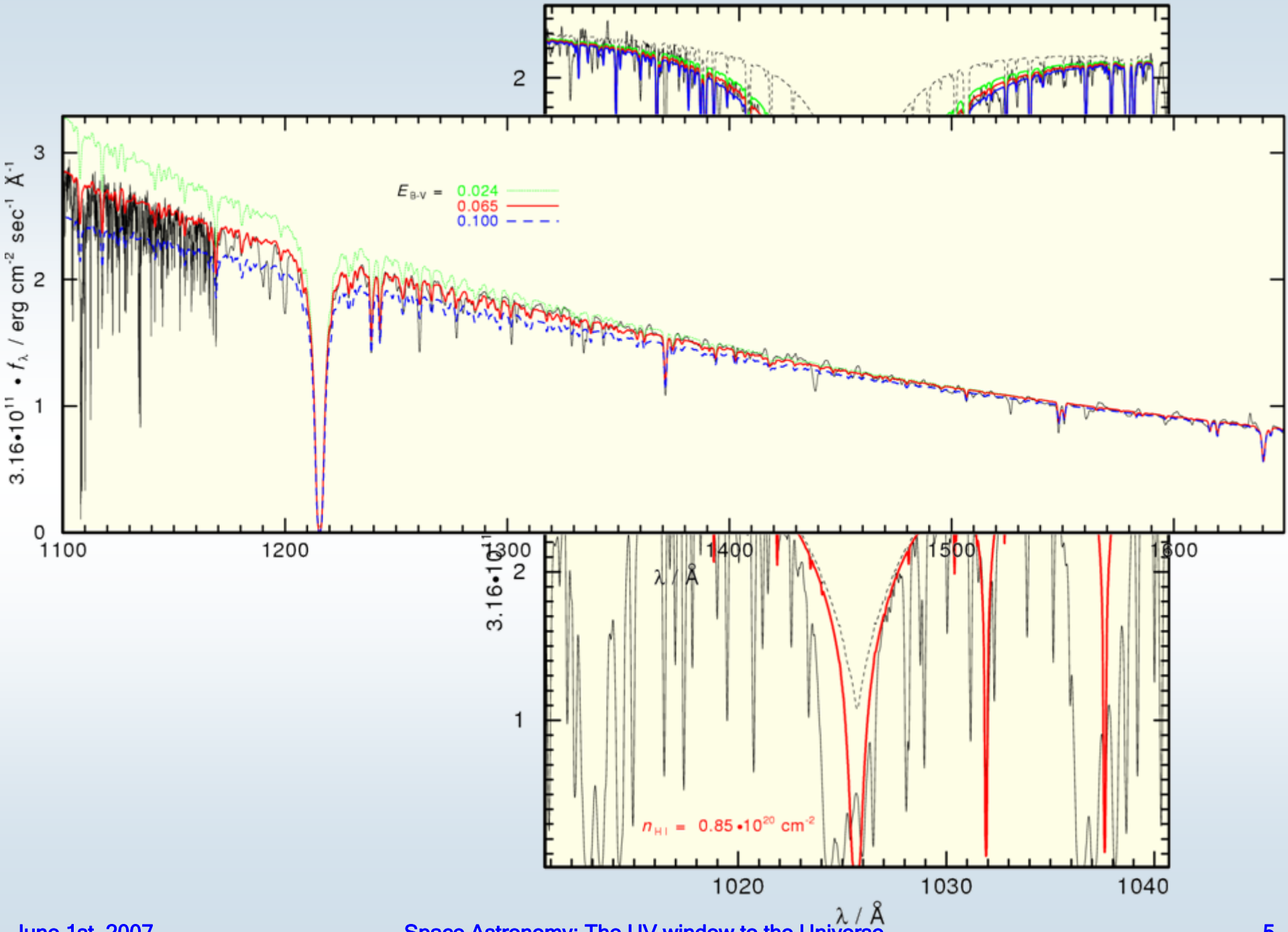
- FUSE: 67.6 ksec in 2003/2004, $R \approx 0.05$ Å
- STIS: 5.5 ksec in 2000, $R \approx 0.06$ Å



NLTE photospheric model atmospheres

- HHeCNOFMgSiPSAr + CaScTiVCrMnFeCoNi
  - "Classical" model atoms
  - IrOnIc: Statistical treatment of Fe group elements
    - Rauch & Deetjen 2003, ASPC, 288, 103

- 686 NLTE levels
- 2417 individual lines
- 9 million iron-group lines
  - Kurucz 1996, IAU Symp. 176, 523

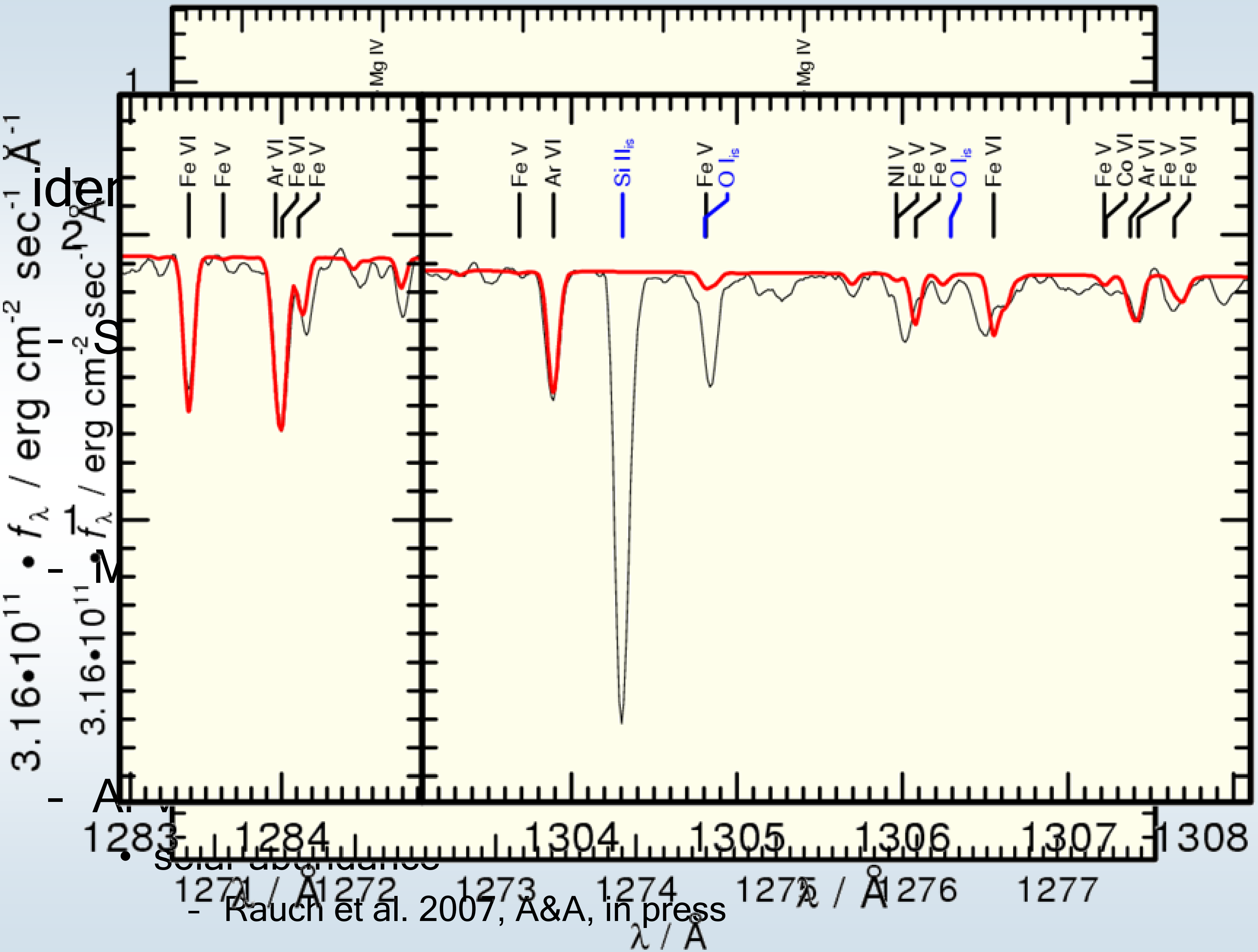

E_{B-V} = 0.024
0.065
0.100
$3.16 \cdot 10^{11} \cdot f_\lambda$ / erg cm^{-2} sec^{-1} Å^{-1}
λ / Å
n_{HI} = 0.85 •10^{20} cm^{-2}

- $N_{HI} = 8.5 \pm 1.0 \cdot 10^{19}$ cm^{-2}
- $E_{B-V} = 0.065$

- $v_{rad} = 20.4$ km sec^{-1}
  - Tweedy & Napiwotzki 1992, MNRAS, 259, 315: $v_{rad} = 11.9$ km sec^{-1}
    - calculation of galactic orbits: Kerber et al. 2004, A&A, 420, 207
  - Holberg et al. 1998, ApJS, 119, 207: $v_{rad} = 11.1$ km sec^{-1}

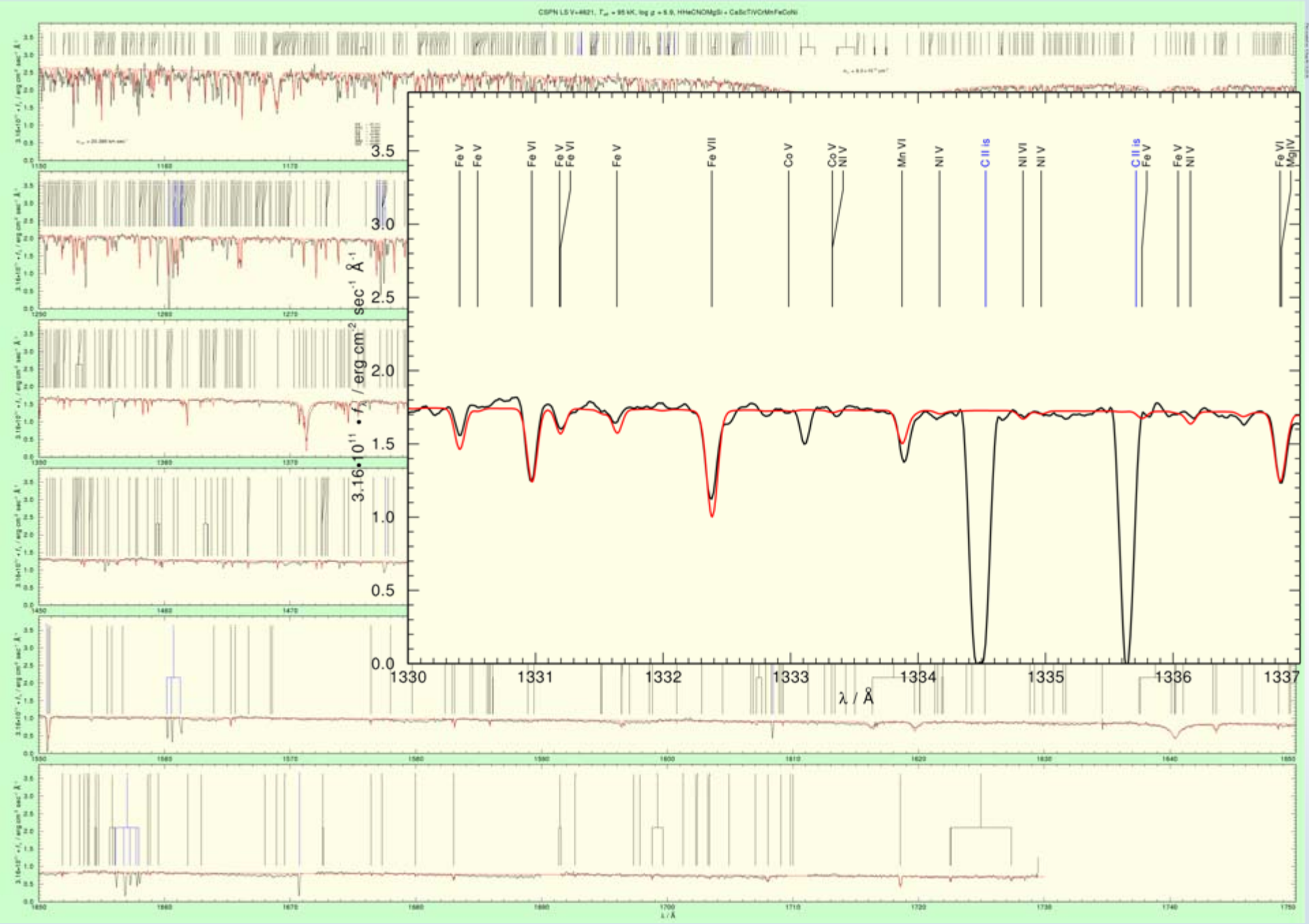
- $T_{eff} = 95 \pm 2$kK
  - ionization equilibria
    - N IV / N V, O IV / O V, Si IV / Si V, Fe V / Fe VI / Fe VII, Ni V / Ni VI

- log $g = 6.9 \pm 0.2$ (cgs)

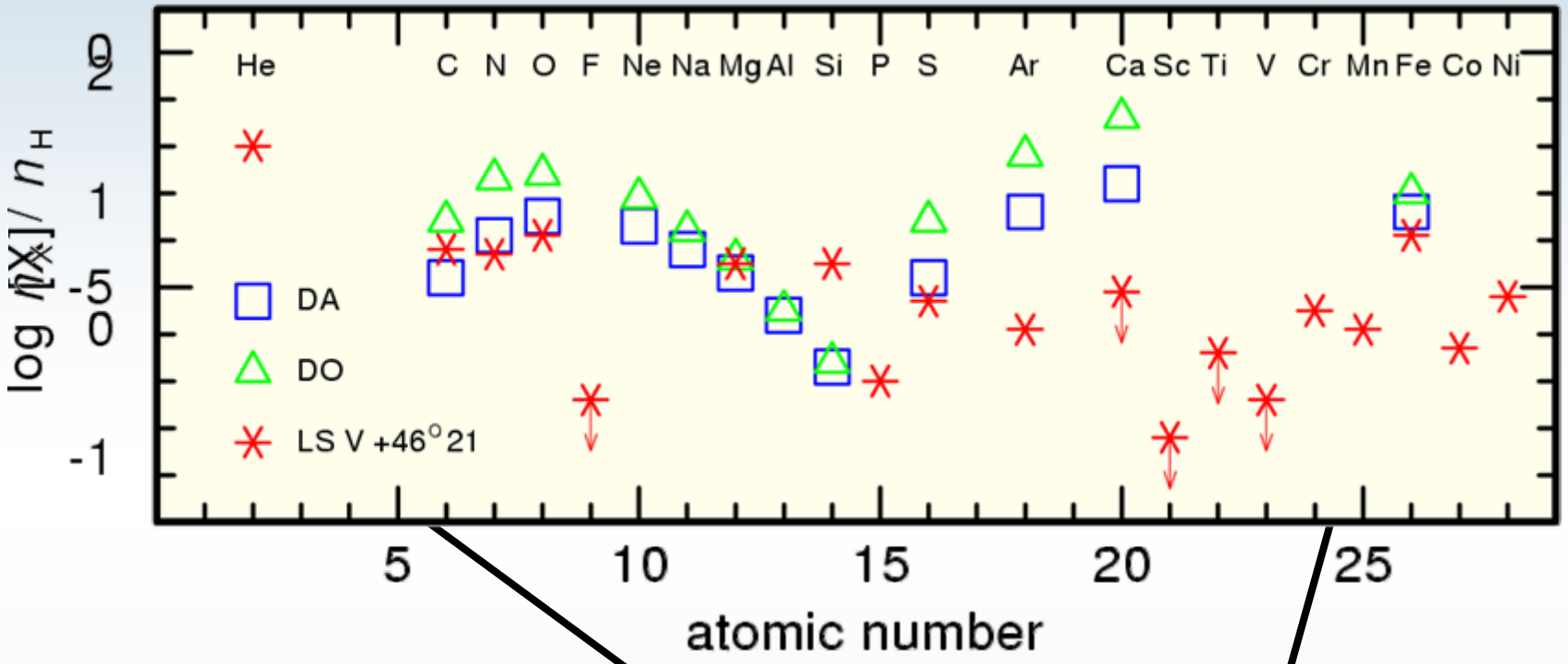


• solar abundance

– Rauch et al. 2007, A&A, in press


Fe V
Fe V
Fe VI
Fe V
Fe VI
Fe V
Fe VII
Co V
Co V
Ni V
Mn VI
Ni V
C II is
Ni VI
Ni V
C II is
Fe V
Fe V
Ni V
Fe VII
Mg IV
3.16•10^11 • f_λ / erg cm^-2 sec^-1 Å^-1
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
1330
1331
1332
1333
1334
1335
1336
1337
λ / Å

Spectroscopy of LS V +46°21

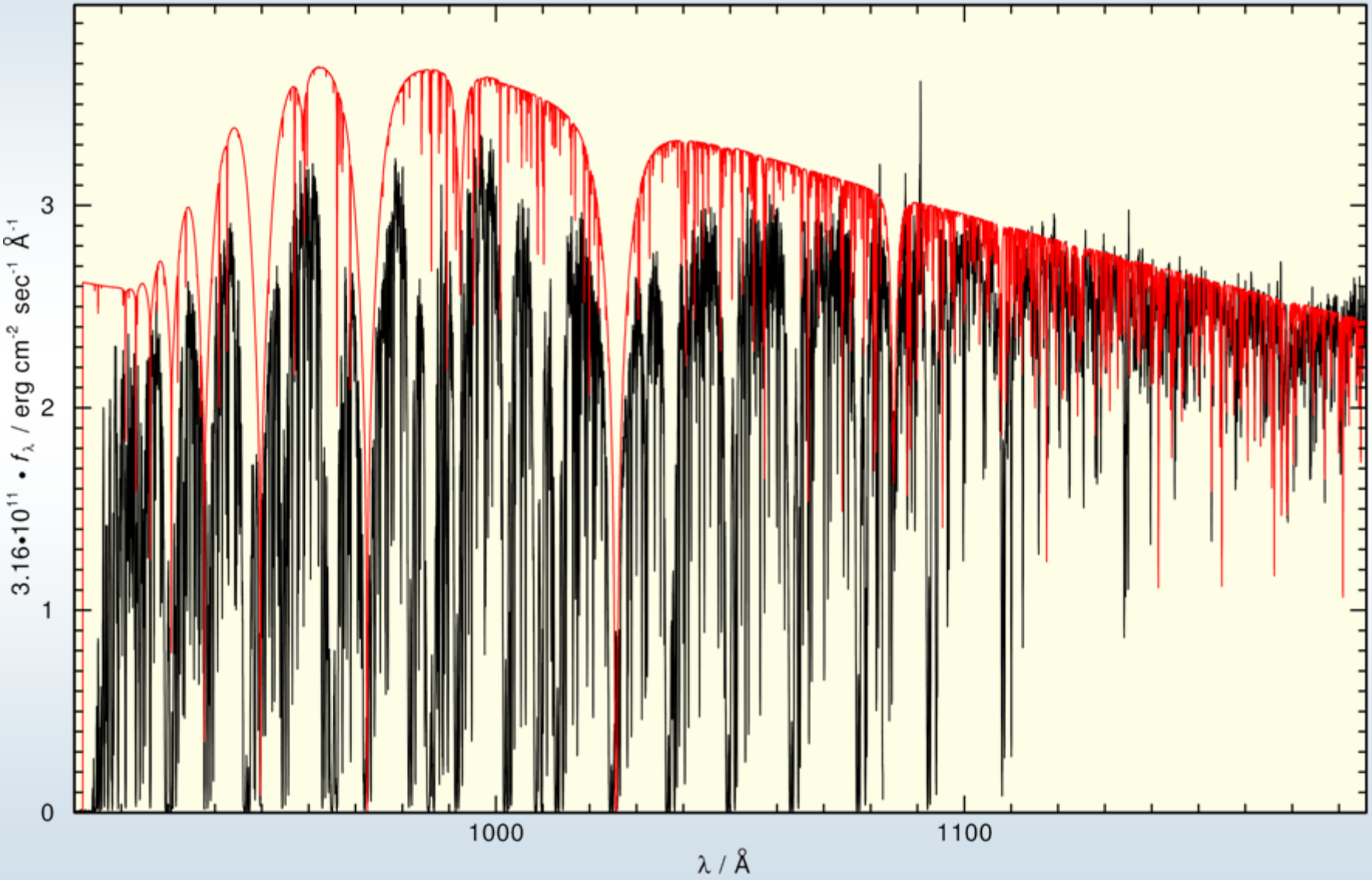


Photospheric abundances

exhibit complex patterns that cannot be explained by diffusion predictions (Chayer et al. 1995a)

in agreement with predictions (Chayer et al. 1995b)

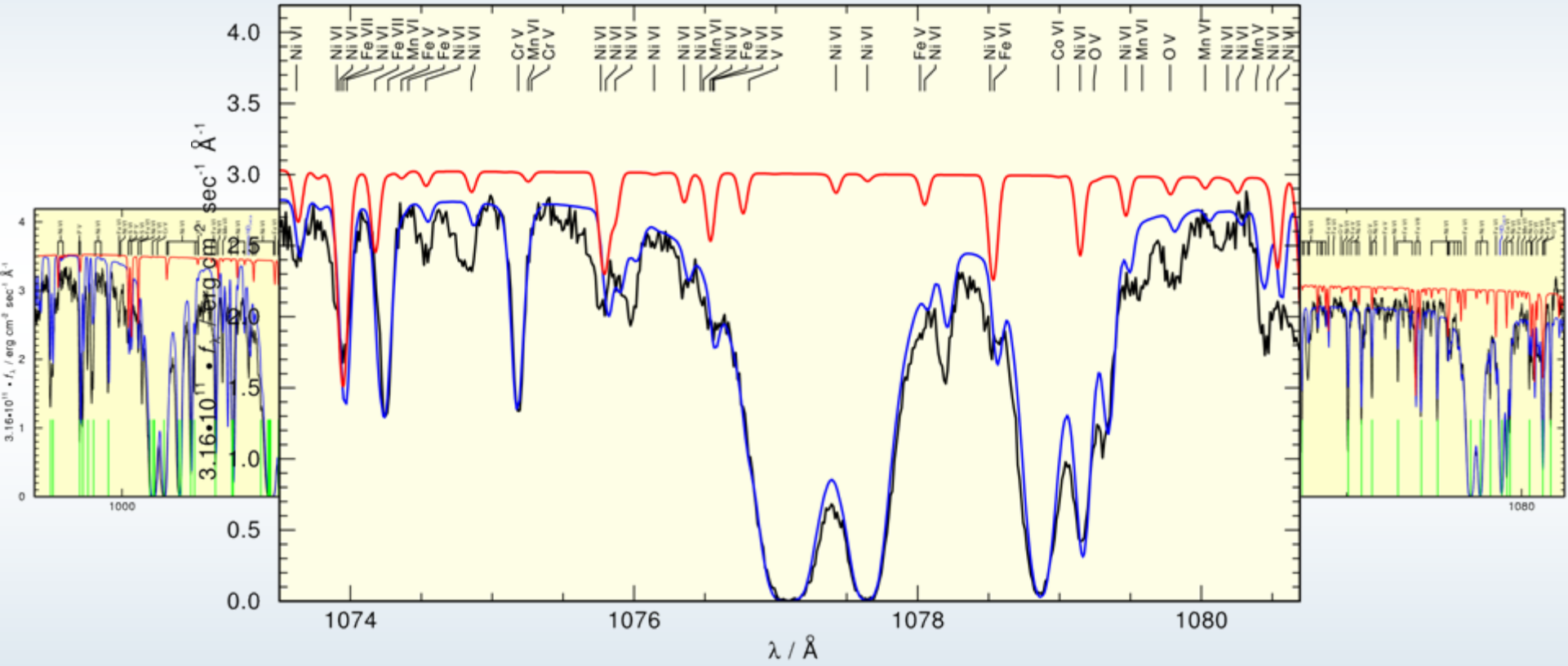
FUSE Spectroscopy of LS V+4621



Combining photospheric and ISM models for the FUSE spectral analysis

- TMAP (Tübingen Model Atmosphere Package):
  The stellar photospheric model
- OWENS (developed by the French FUSE Team):
  The ISM absorption model;
  takes into account different temperatures, radial and turbulent velocities, chemical compositions, as well as column densities for each element included

LS V +46°21: FUSE



Conclusion

Inclusion of the ISM absorption model in the FUV spectral analysis improves the reliability of the determination of photospheric parameters and vice versa.