

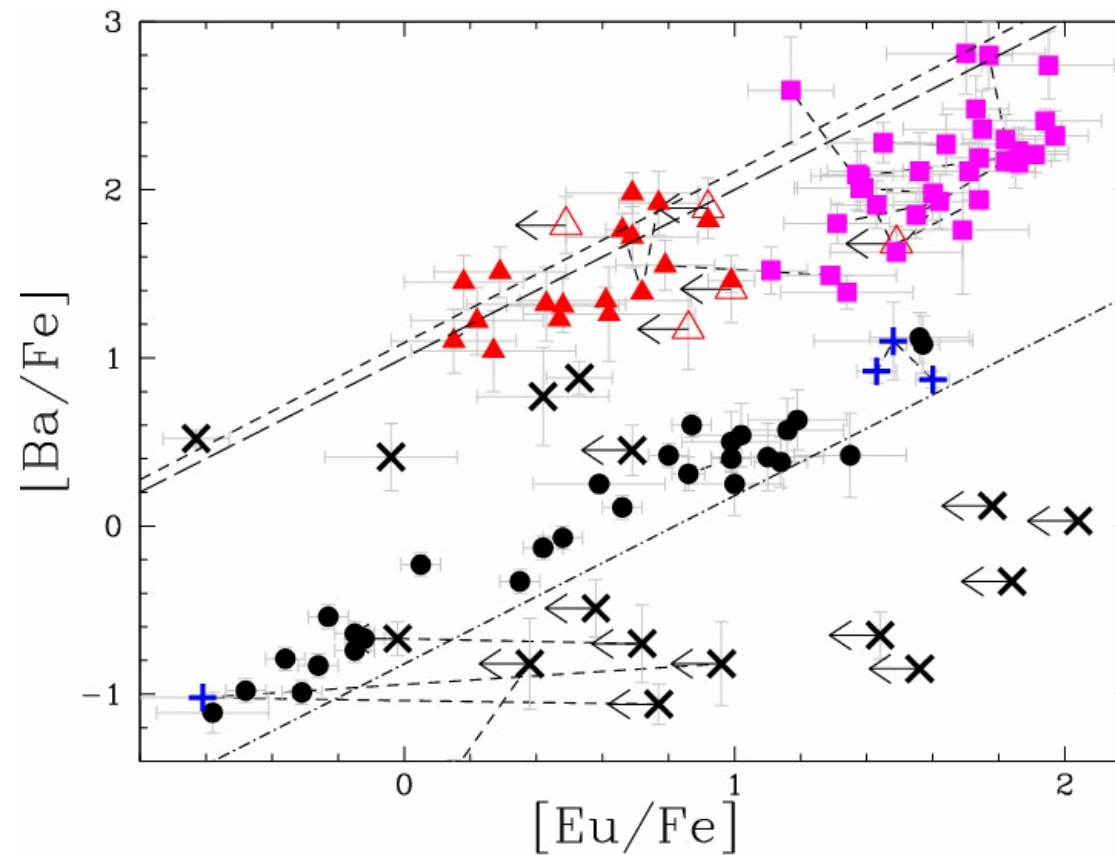
Thomas Masseron  
Instituto de Astrofísica de Canarias

## **Me & high resolution spectroscopy**

- Galactic archaeology
- Galactic populations
- Globular clusters
- Stellar physics and nucleosynthesis
- Exoplanet studies
- Large spectroscopic surveys

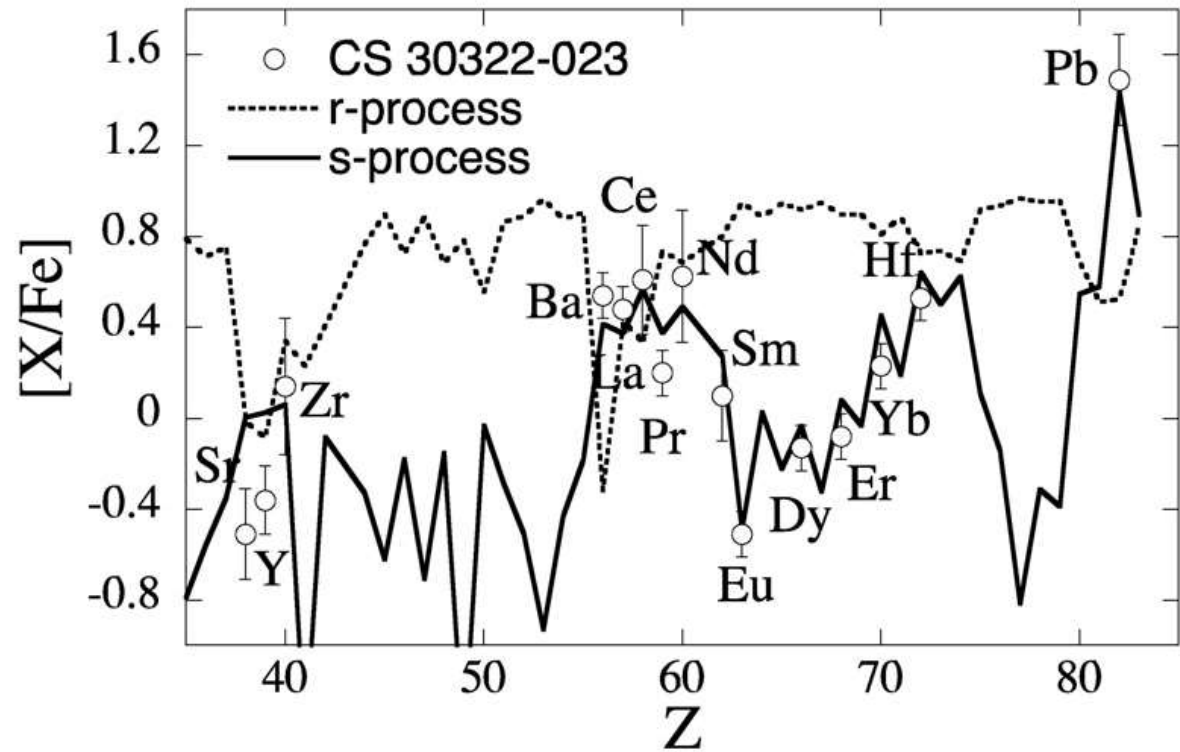
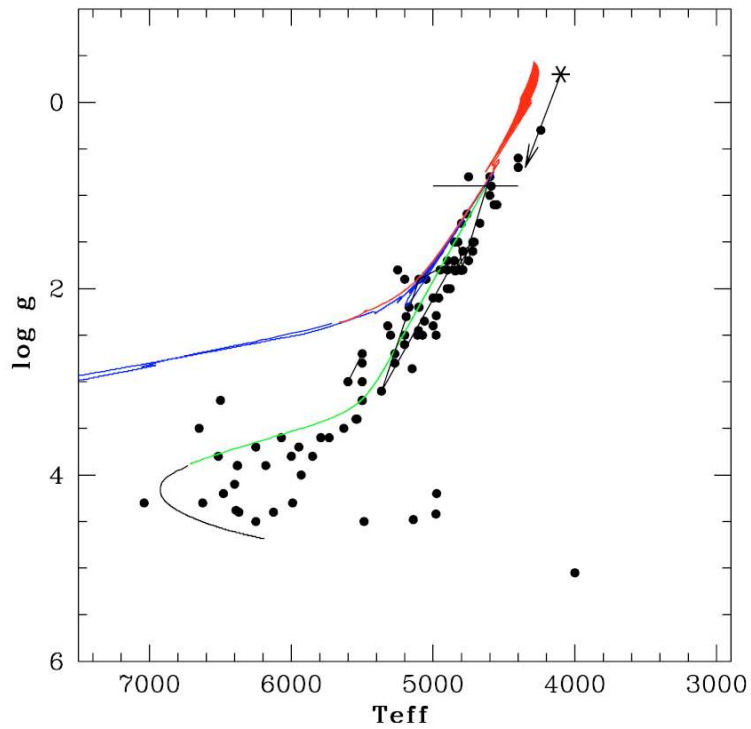
## A holistic approach to carbon-enhanced metal-poor stars★

T. Masseron<sup>1,2</sup>, J. A. Johnson<sup>1</sup>, B. Plez<sup>2,3</sup>, S. Van Eck<sup>4</sup>, F. Primas<sup>5</sup>, S. Goriely<sup>4</sup>, and A. Jorissen<sup>4</sup>



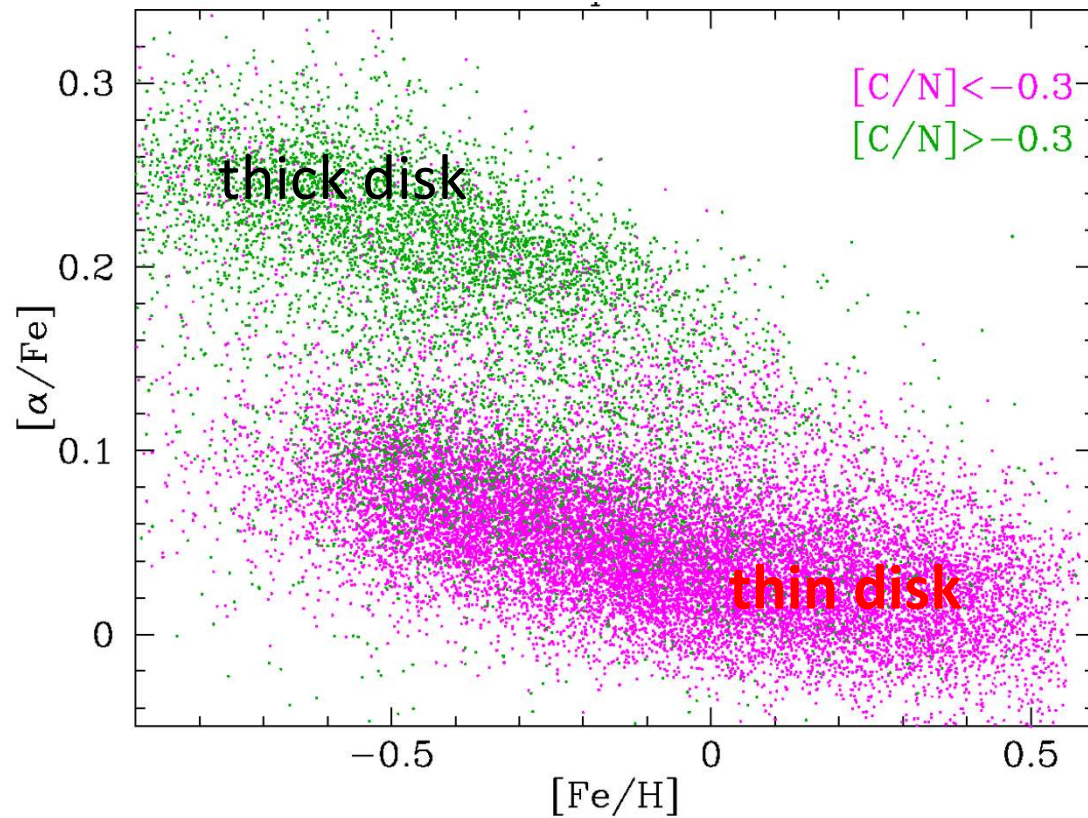
## CS 30322-023: an ultra metal-poor TP-AGB star?★

T. Masseron<sup>1</sup>, S. Van Eck<sup>2</sup>, B. Famaey<sup>2</sup>, S. Goriely<sup>2</sup>, B. Plez<sup>1</sup>, L. Siess<sup>2</sup>, T. C. Beers<sup>3</sup>, F. Primas<sup>4</sup>, and A. Jorissen<sup>2</sup>

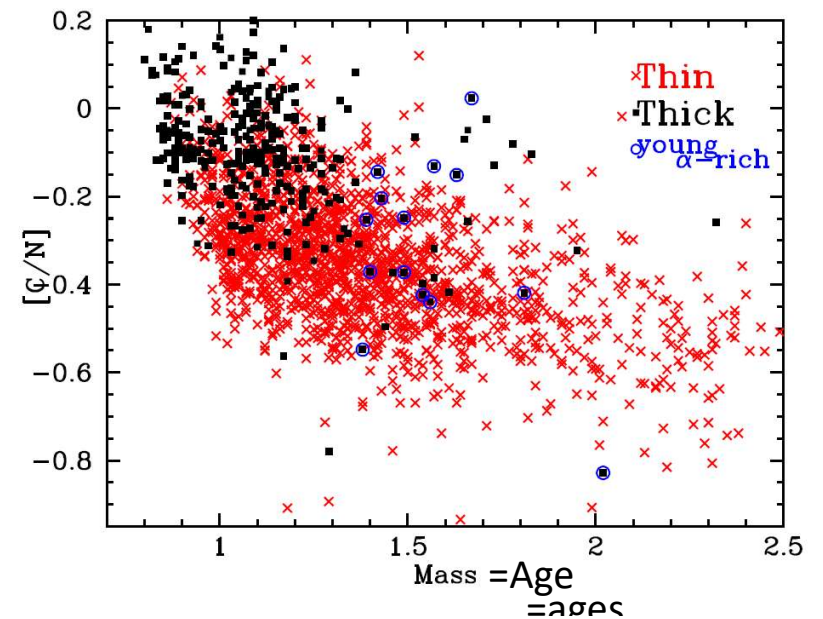


## Carbon, nitrogen and $\alpha$ -element abundances determine the formation sequence of the Galactic thick and thin discs

T. Masseron<sup>★</sup> and G. Gilmore



*C/N ratios in giants can infer stellar ages and populations*

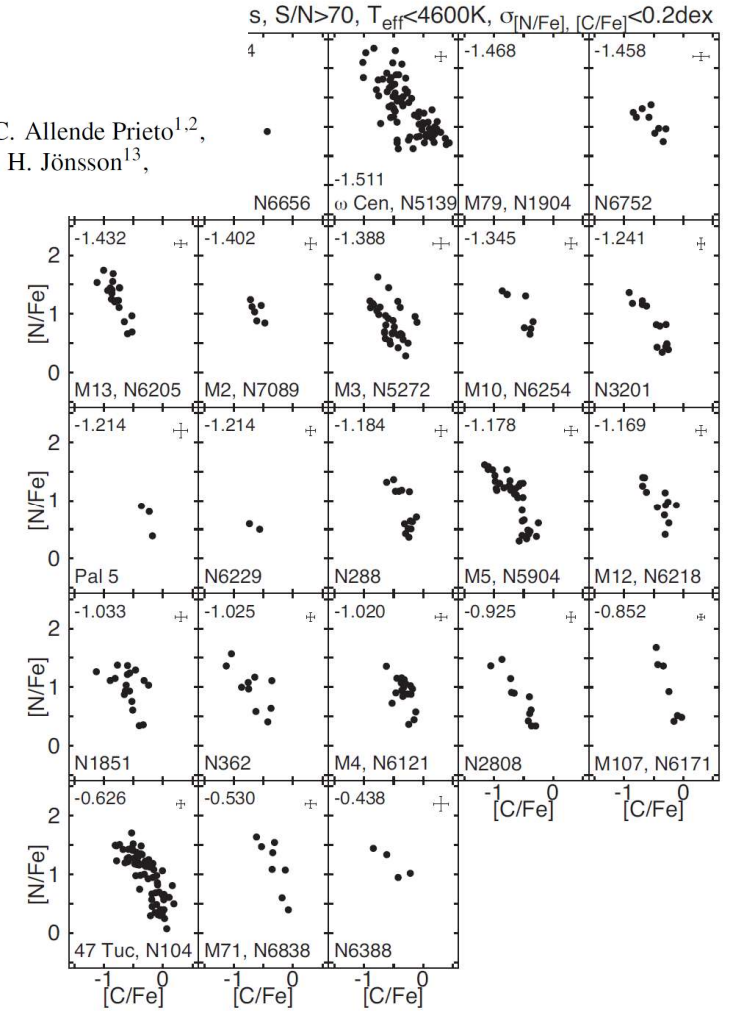
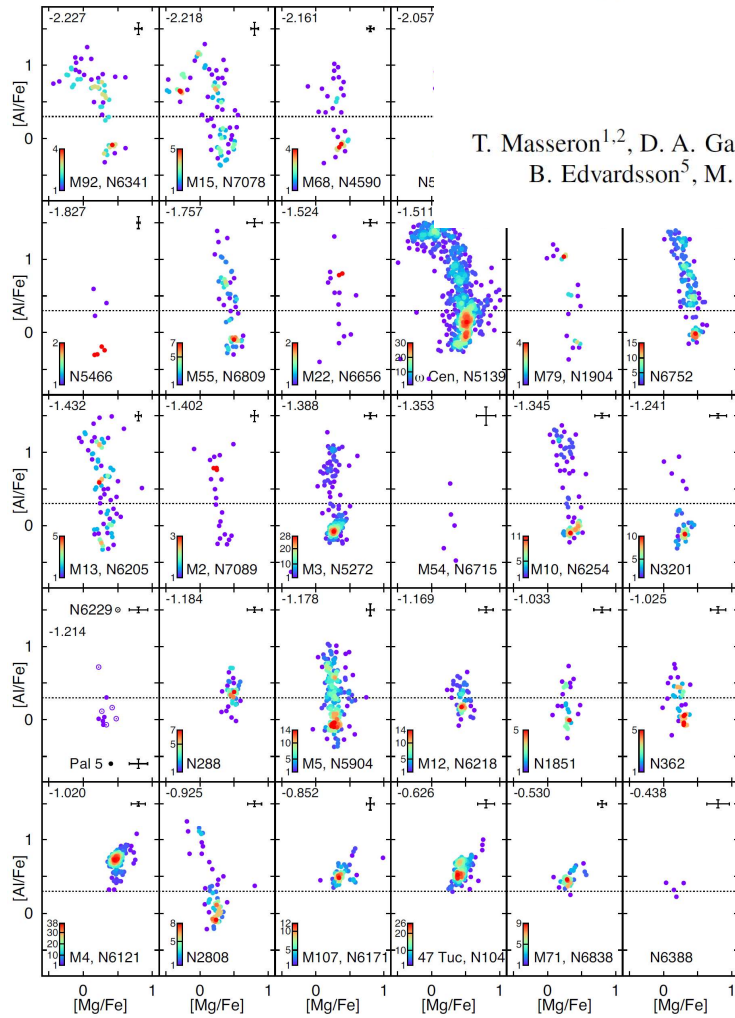




# Homogeneous analysis of globular clusters from the APOGEE survey with the BACCHUS code

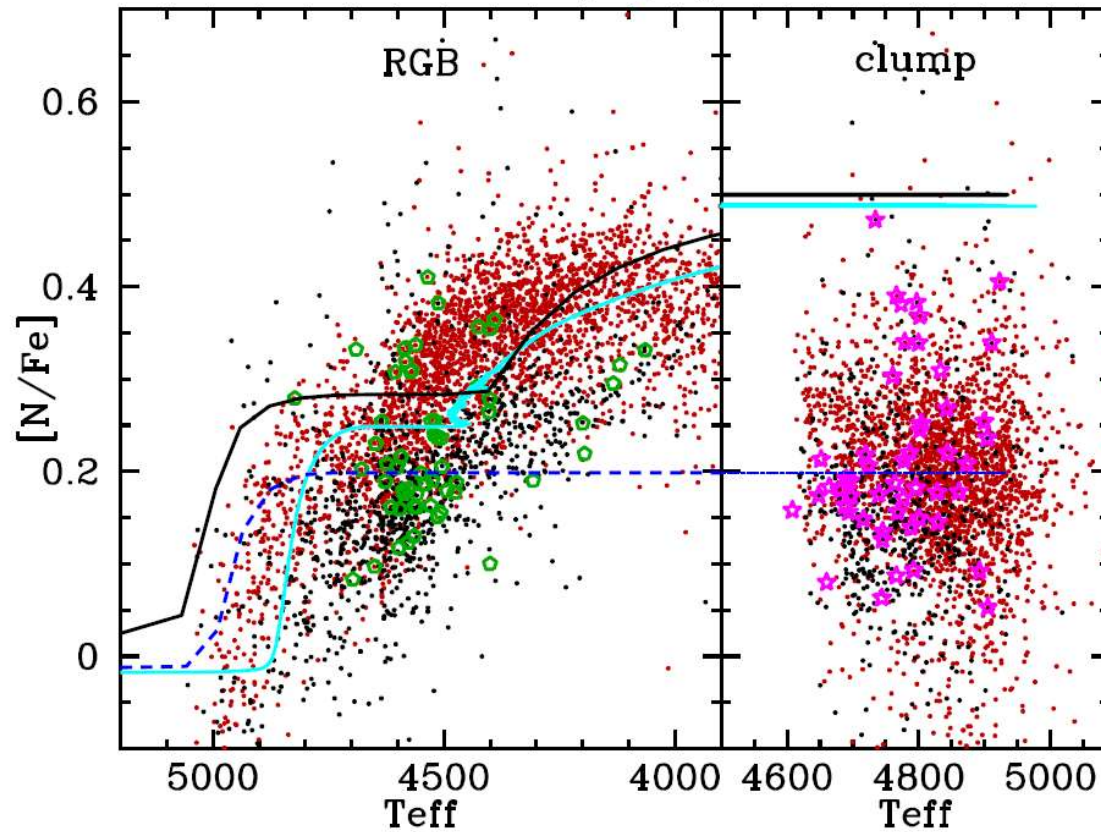
## I. The northern clusters<sup>\*</sup>

T. Masseron<sup>1,2</sup>, D. A. García-Hernández<sup>1,2</sup>, Sz. Mészáros<sup>3,4</sup>, O. Zamora<sup>1,2</sup>, F. Dell’Aglì<sup>1,2</sup>, C. Allende Prieto<sup>1,2</sup>,  
 B. Edvardsson<sup>5</sup>, M. Shetrone<sup>6</sup>, B. Plez<sup>7</sup>, J. G. Fernández-Trincado<sup>8,9,10</sup>, K. Cunha<sup>11,12</sup>, H. Jönsson<sup>13</sup>,  
 D. Geisler<sup>9,14,15</sup>, T. C. Beers<sup>16</sup>, and R. E. Cohen<sup>17</sup>



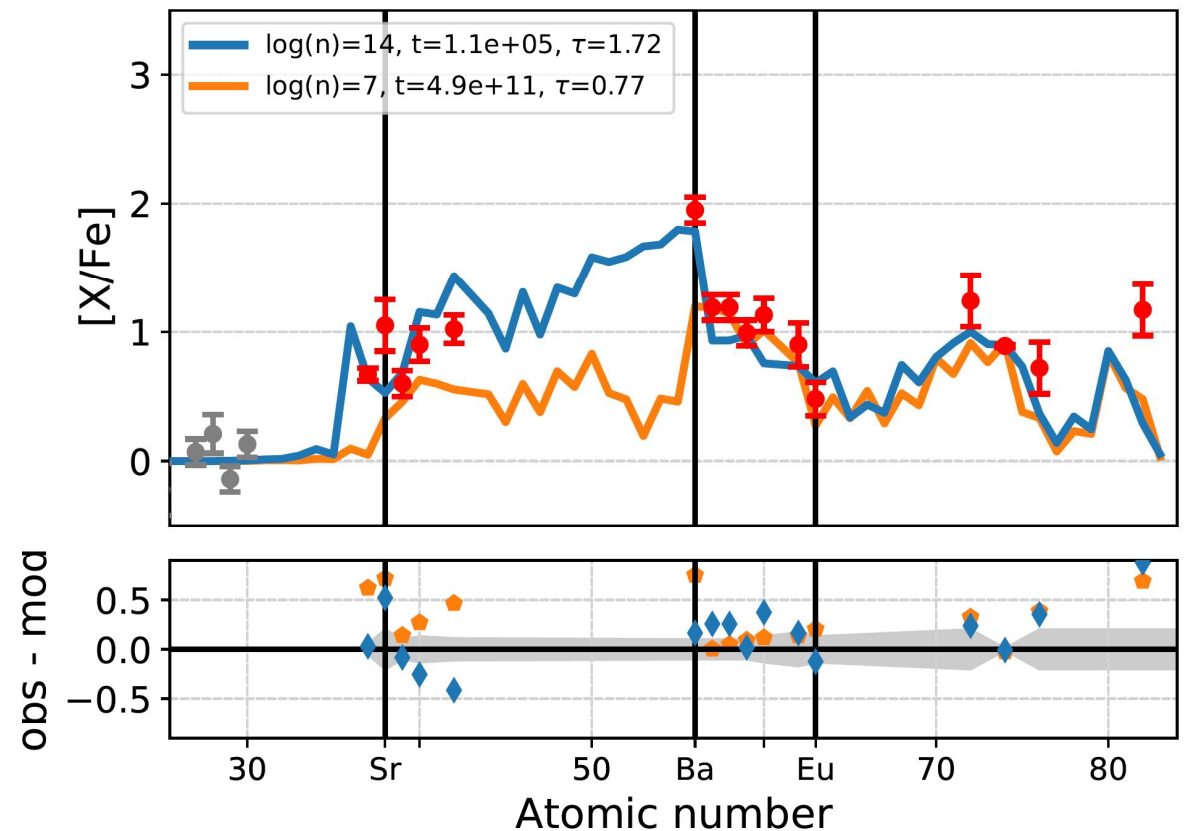
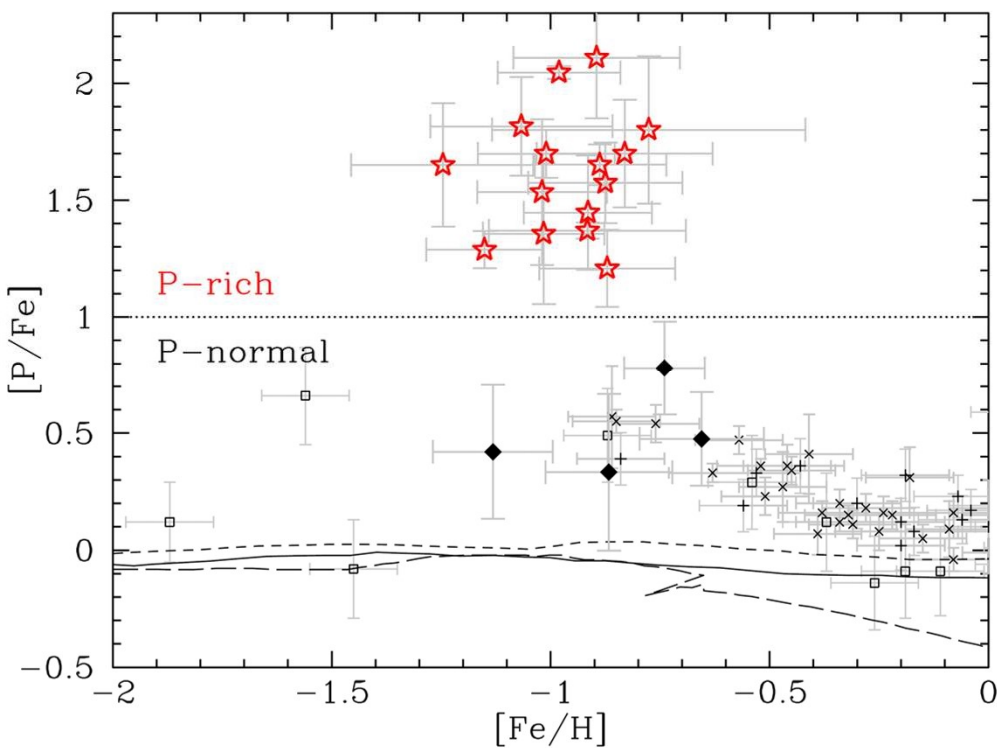
## Nitrogen depletion in field red giants: mixing during the He flash?

T. Masseron,<sup>1</sup>★ N. Lagarde,<sup>2,3</sup> A. Miglio,<sup>3,4</sup> Y. Elsworth<sup>3,4</sup> and G. Gilmore<sup>1</sup>



# Phosphorus-rich stars with unusual abundances are challenging theoretical predictions

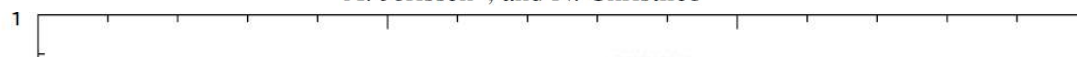
Thomas Masseron <sup>1,2</sup>✉, D. A. García-Hernández <sup>1,2</sup>, Raúl Santoveña <sup>3,4</sup>, Arturo Manchado <sup>1,2,5</sup>, Olga Zamora <sup>1,2</sup>, Minia Manteiga <sup>3,6</sup> & Carlos Dafonte <sup>3,4</sup>





## CH in stellar atmospheres: an extensive linelist<sup>★</sup>

T. Masseron<sup>1</sup>, B. Plez<sup>2</sup>, S. Van Eck<sup>1</sup>, R. Colin<sup>3</sup>, I. Daoutidis<sup>1</sup>, M. Godefroid<sup>3</sup>, P.-F. Coheur<sup>3</sup>, P. Bernath<sup>4</sup>,  
A. Jorissen<sup>1</sup>, and N. Christlieb<sup>5</sup>



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Journal of Quantitative Spectroscopy and  
Radiative Transfer

Volume 217, September 2018, Pages 29-34

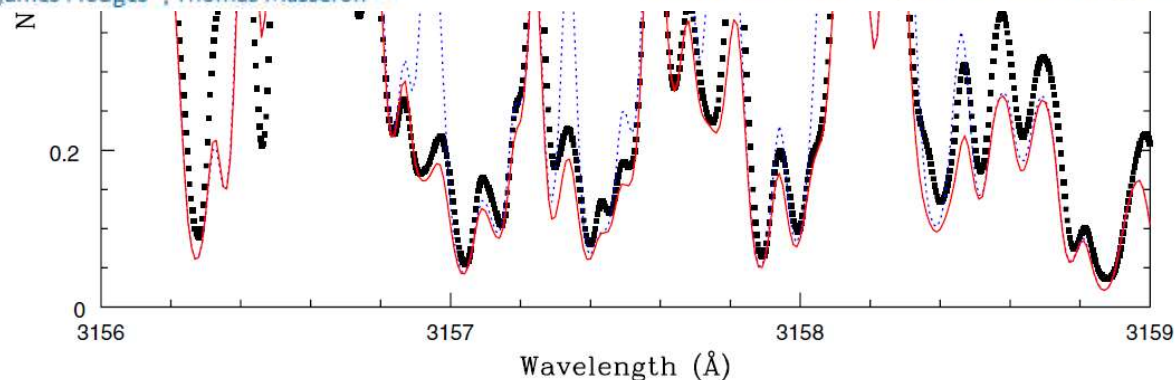


A new line list for the  $A^2\Sigma^+ - X^2\Pi$  electronic transition of OH

A new linelist for the  $A^3\Pi - X^3\Sigma^-$  transition of the NH free radical

Mahdi Yousefi<sup>a</sup>, Peter F. Bernath<sup>a,b</sup>, James Hodges<sup>b</sup>, Thomas Masseron<sup>c,d</sup>

Anton M. Fernando<sup>a</sup>, Peter F. Bernath<sup>a,b</sup>, James N. Hodges<sup>b</sup>, Thomas Masseron<sup>c,d</sup>

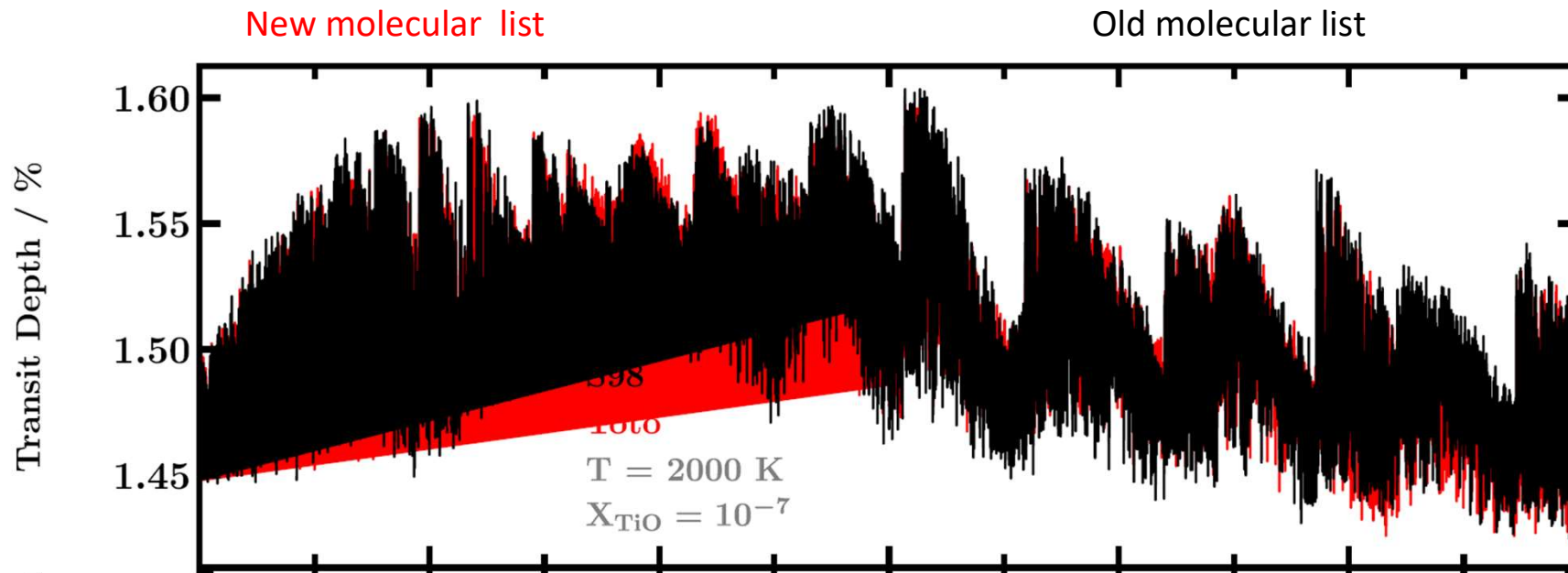









## Assessing spectra and thermal inversions due to TiO in hot Jupiter atmospheres

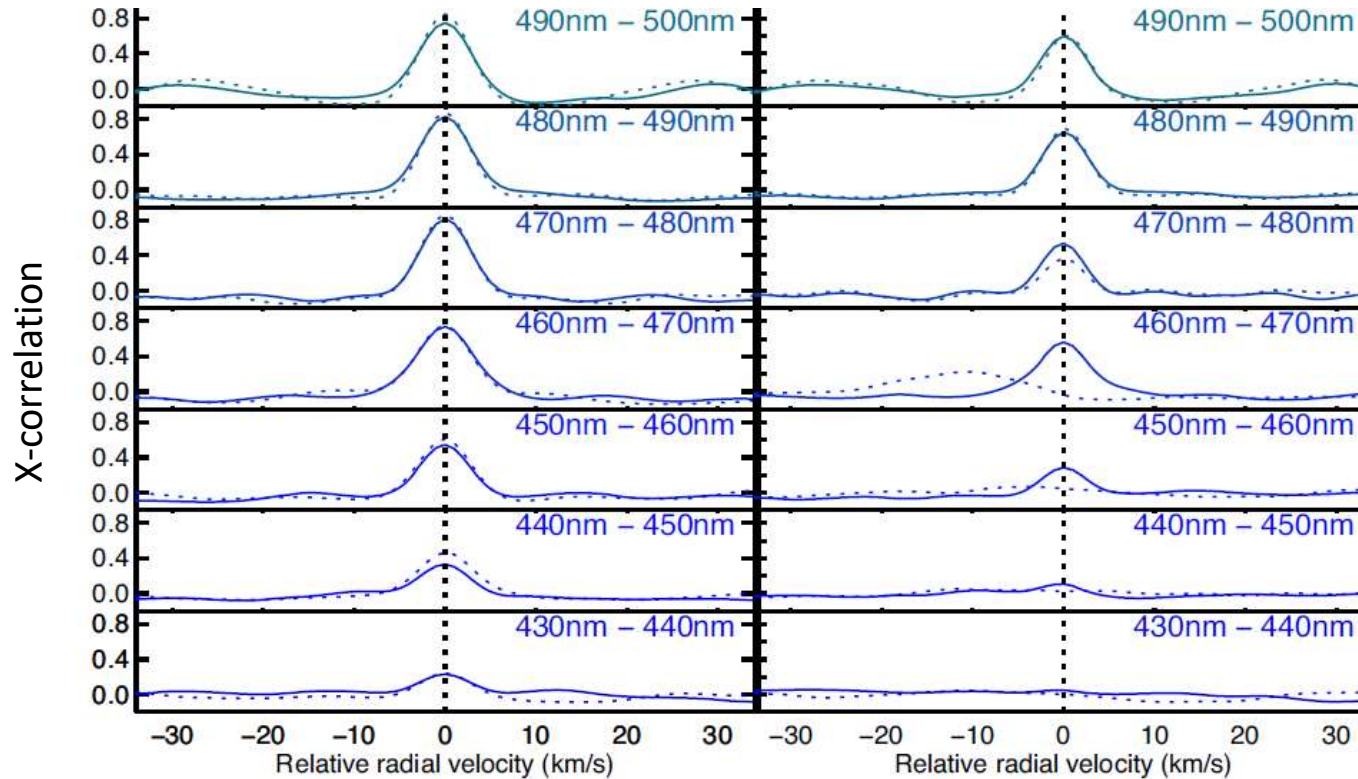
Anjali A. A. Piette <sup>1</sup>,<sup>\*</sup> Nikku Madhusudhan <sup>1</sup>,<sup>\*</sup> Laura K. McKemmish,<sup>2</sup>  
Siddharth Gandhi <sup>1,3</sup>, Thomas Masseron<sup>4,5</sup> and Luis Welbanks <sup>1</sup>



Accurate linelists for transit spectroscopy of exoplanets

## ExoMol molecular line lists – XXXIII. The spectrum of Titanium Oxide

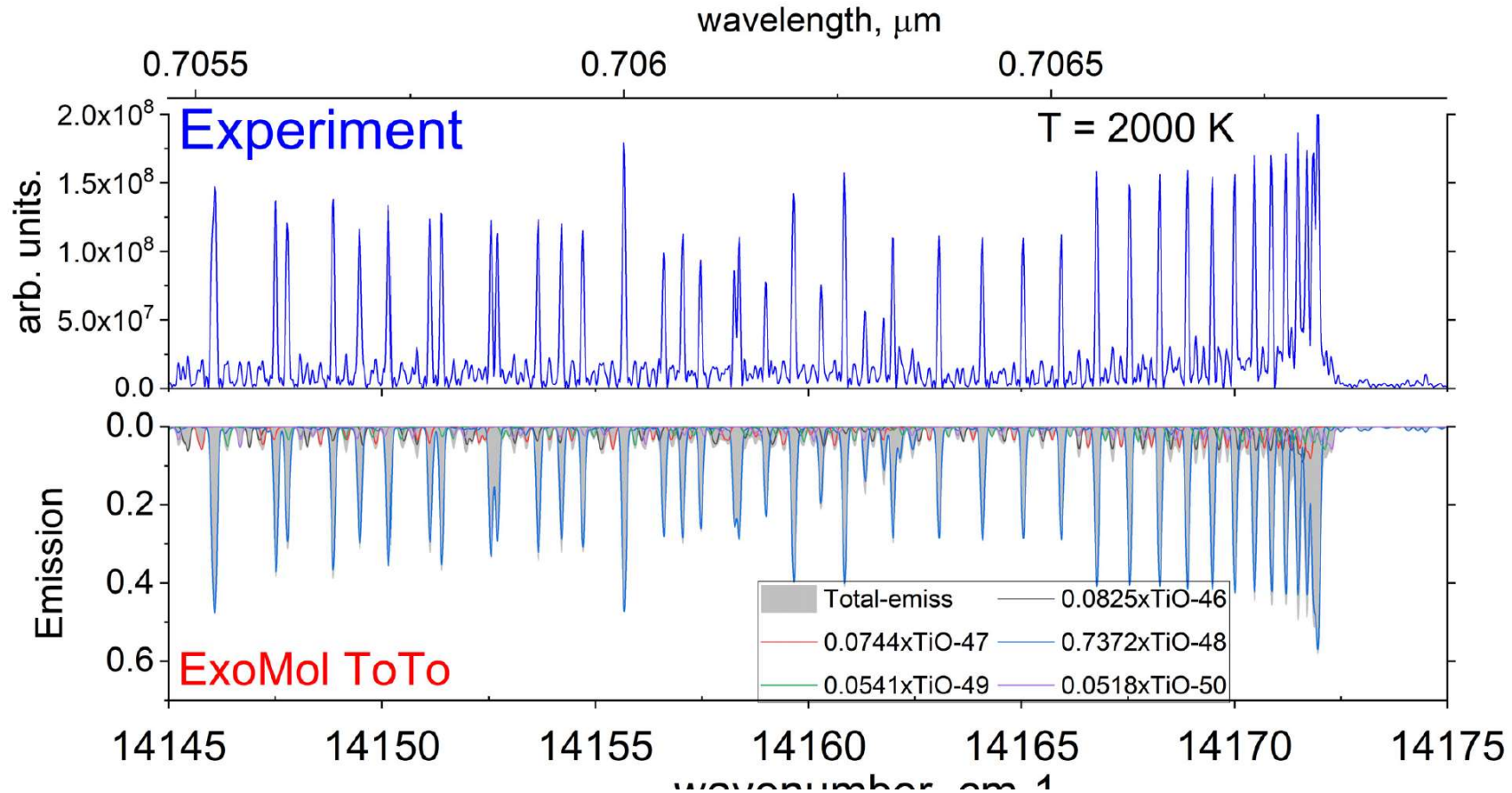
Laura K. McKemmish,<sup>1,2</sup> Thomas Masseron,<sup>3,4</sup> H. Jens Hoeijmakers,<sup>5,6</sup>  
V́ctor Pérez-Mesa,<sup>3,4</sup> Simon L. Grimm,<sup>5</sup> Sergei N. Yurchenko<sup>2</sup>  
and Jonathan Tennvson   





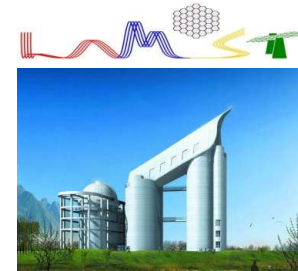
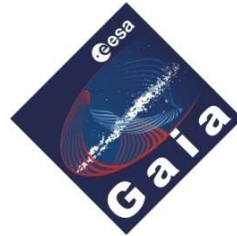
## ExoMol molecular line lists – XXXIII. The spectrum of Titanium Oxide

Laura K. McKemmish,<sup>1,2</sup> Thomas Masseron,<sup>3,4</sup> H. Jens Hoeijmakers,<sup>5,6</sup>  
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 and Jonathan Tennvson <sup>2</sup>★



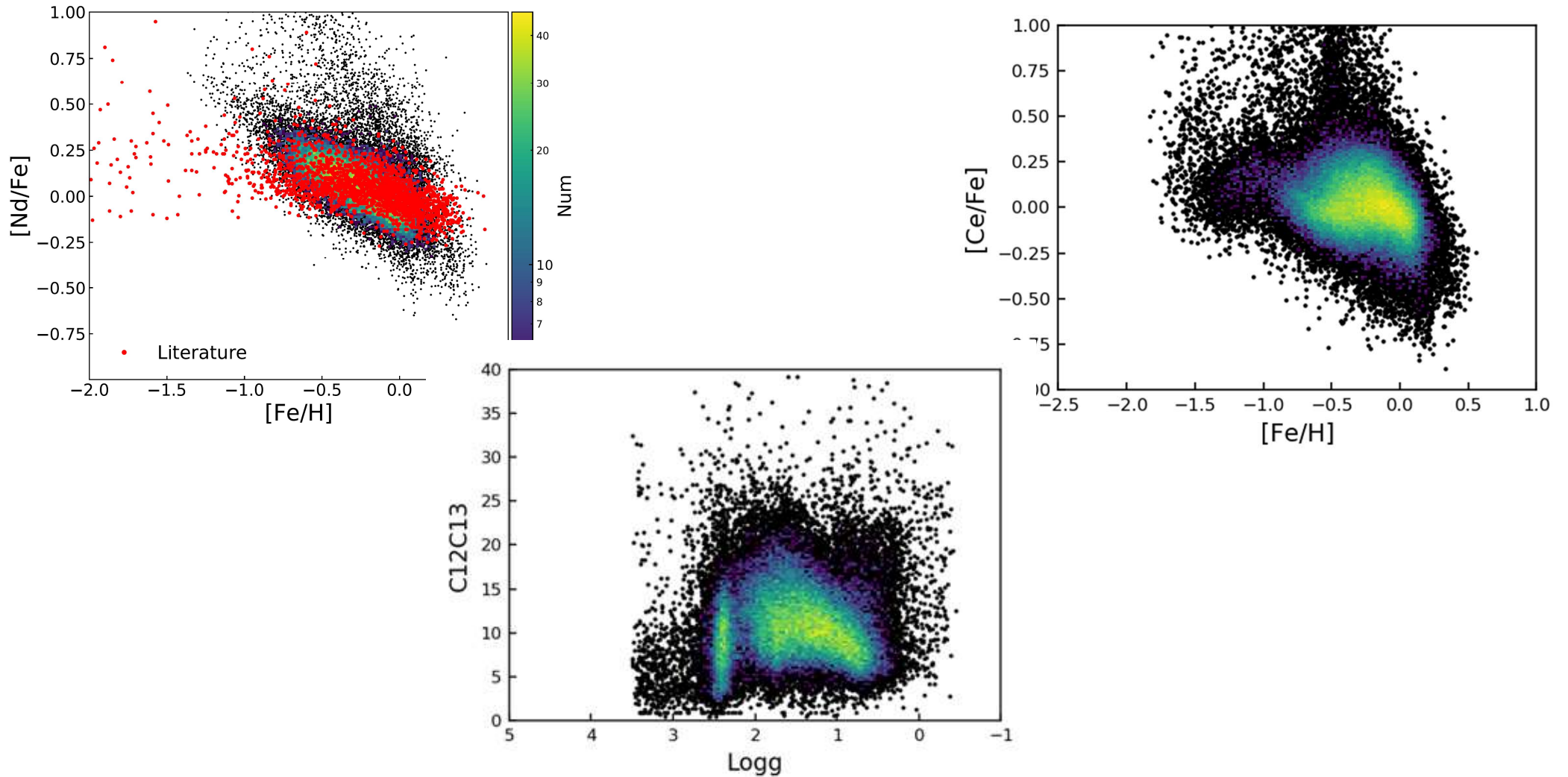
# Large spectroscopic surveys

Are providing a huge input catalog for high resolution follow





# Hayes & Masseron (in prep.)



# My wish list

- Go very high res
- Go high efficiency
- Go blue

