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J/A+A/579/A28 Abundances of 3 CEMP stars (Bonifacio+, 2015)

TOPOs: II. On the bimodality of carbon abundance in CEMP stars.
Implications on the early chemical evolution of galaxies.

Bonifacio P., Caffau E., Spite M., Limongi M., Chieffi A., Klessen R.S.,
Francois P., Molaro P., Ludwig H.-G., Zaggia S., Spite F., Plez B.,
Cayrel R., Christlieb N., Clark P.C., Glover S.C.O., Hammer F., Koch A.,
Monaco L., Sbordone L., Steffen M.

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ADC_Keywords: Stars, population II ; Stars, metal-deficient ;
Equivalent widths ; Abundances

Keywords: stars: Population II - stars: abundances - stars: Population III -
Galaxy: abundances - Galaxy: formation - Galaxy: halo

Abstract:

In the course of the TOPOs (Turn Off Primordial Stars) survey, aimed at discovering the lowest metallicity stars, we have found several carbon-enhanced metal-poor (CEMP) stars. These stars are very common among the stars of extremely low metallicity and provide important clues to the star formation processes. We here present our analysis of six CEMP stars.

We want to provide the most complete chemical inventory for these six stars in order to constrain the nucleosynthesis processes responsible for the abundance patterns.

Description:

We analyse both X-Shooter and UVES spectra acquired at the VLT. We used a traditional abundance analysis based on OSMARCS 1D Local Thermodynamic Equilibrium (LTE) model atmospheres and the TURBOSPECTRUM line formation code.

File Summary:

FileName	Line1	Records	Explanations
ReadMe	80	.	This file
stars.dat	101	3	Coordinates and magnitudes from SDSS
table4.dat	72	99	Line-by-line abundances of SDSS J0212+0137, SDSS J1137+2553, and SDSS J1245-0738

Byte-by-byte Description of file: [stars.dat](#)

Bytes	Format	Units	Label	Explanations
1- 4	A4	---	---	[SDSS]
6- 15	A10	---	Name	Abbreviated star name (JHHMM+DDMM)
17- 18	I2	h	RAh	Right ascension (J2000)
20- 21	I2	min	RAm	Right ascension (J2000)
23- 27	F5.2	s	RAS	Right ascension (J2000)
29	A1	---	DE-	Declination sign (J2000)
30- 31	I2	deg	DEd	Declination (J2000)
33- 34	I2	arcmin	DEm	Declination (J2000)
36- 40	F5.2	arcsec	DEs	Declination (J2000)
42- 46	F5.2	mag	umag	SDSS u magnitude
48- 52	F5.2	mag	gmag	SDSS g magnitude
54- 58	F5.2	mag	rmag	SDSS r magnitude
60- 64	F5.2	mag	imag	SDSS i magnitude
66- 70	F5.2	mag	zmag	SDSS z magnitude
72- 76	F5.3	mag	E(B-V)	Colour excess
78- 81	A4	---	---	[SDSS]
83-101	A19	---	SDSS	SDSS full name (JHHMMSS.ss+DDMMSS.s)

Byte-by-byte Description of file: [table4.dat](#)

Bytes	Format	Units	Label	Explanations
1- 6	A6	---	Ion	Ion (element and ionization stage)
9- 16	F8.4	nm	lambda	[375/867] Wavelength λ
18- 21	F4.2	eV	chi	[0/9.2] Lower energy of the transition χ
23- 28	F6.3	[-]	logg _f	[-3/0.5]? Logarithm of the product of the oscillator strength of the transition and the statistical weight of the lower level
29- 31	A3	---	n_loggf	[hfs] hfs for hyper-fine line
33- 37	F5.2	pm	EW1	? Equivalent width of the line for SDSS J0212+0137
38	A1	---	n_Ab1	[s] 's' if derived from synthetic spectrum
40- 44	F5.2	---	Ab1	? Abundance of the element [log(X/H)+12] for

```
SDSS J0212+0137
47- 51 F5.2 pm EW2 ? Equivalent width of the line for SDSS J1137+2553
      52 A1 --- n_Ab2 [s] 's' if derived from synthetic spectrum
54- 58 F5.2 --- Ab2 ? Abundance of the element [log(X/H)+12] for
SDSS J1137+2553
60- 64 F5.2 pm EW3 ? Equivalent width of the line for SDSS J1245-0738
      65 A1 --- n_Ab3 [s] 's' if derived from synthetic spectrum
68- 72 F5.2 --- Ab3 ? Abundance of the element [log(X/H)+12] for
SDSS J1245-0738
```

Acknowledgements:

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References:

Caffau et al., Paper I [2013A&A...560A..71C](#)

(End)

Patricia Vannier [CDS]

19-Jun-2015

The document above follows the rules of the [Standard Description for Astronomical Catalogues](#); from this documentation it is possible to generate *f77* program to load files [into arrays](#) or [line by line](#)

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