http://saga.sci.hokudai.ac.jp/
http://astro.keele.ac.uk/saga/ (UK mirror)

金属欠乏星データベースで探る銀河系の形成と進化

須田 拓馬[1]

山田 志真子[1], 勝田 豊[1], 小宮 悠[2], 青木 和光[2], 藤本 正行[1]

1: 北海道大学

2: 国立天文台

Chemical Evolution in our Galaxy

Molecular Clouds

Proto Stars

From the First Stars

stars consisting of elements lighter than berylium

X (Hydrogen)~0.76, Y (Helium) ~0.24, Z (Metals) =0

(Abundance in mass fraction)

to the present Galaxy

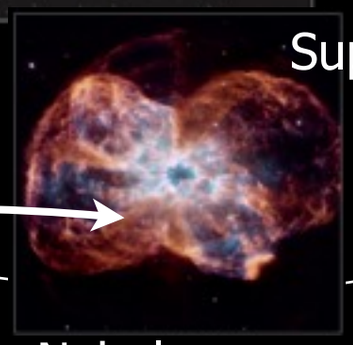
Nearly solar chemical composition

X~0.7, Y~0.3, Z~0.02

Main Sequence Stars

Supernovae

Supernova Remnant



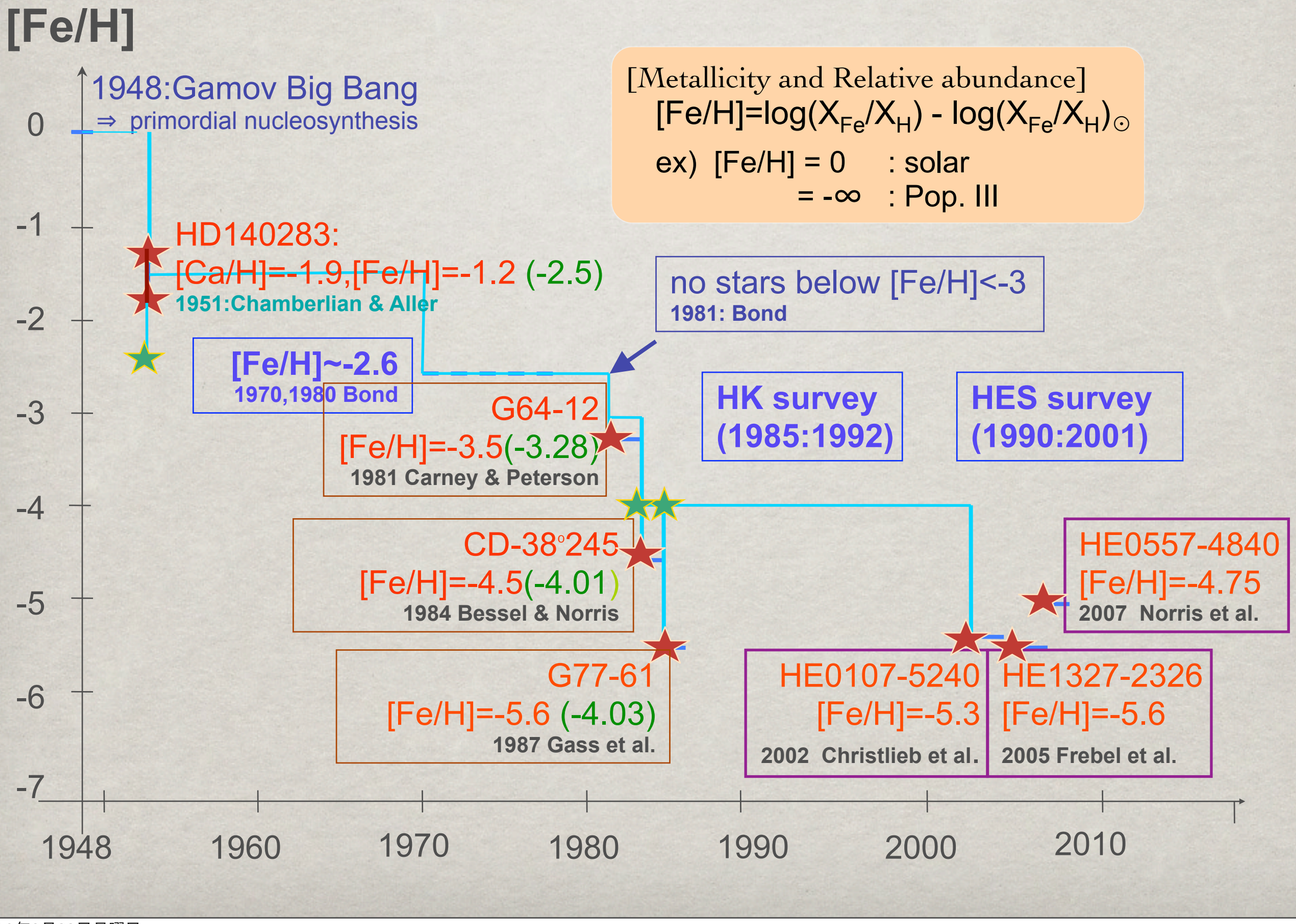
Red Giant Stars

Planetary Nebulae
White Dwarfs

NGC2440 : from HST

Crab nebula : from Subaru

History of Search for Pop. III



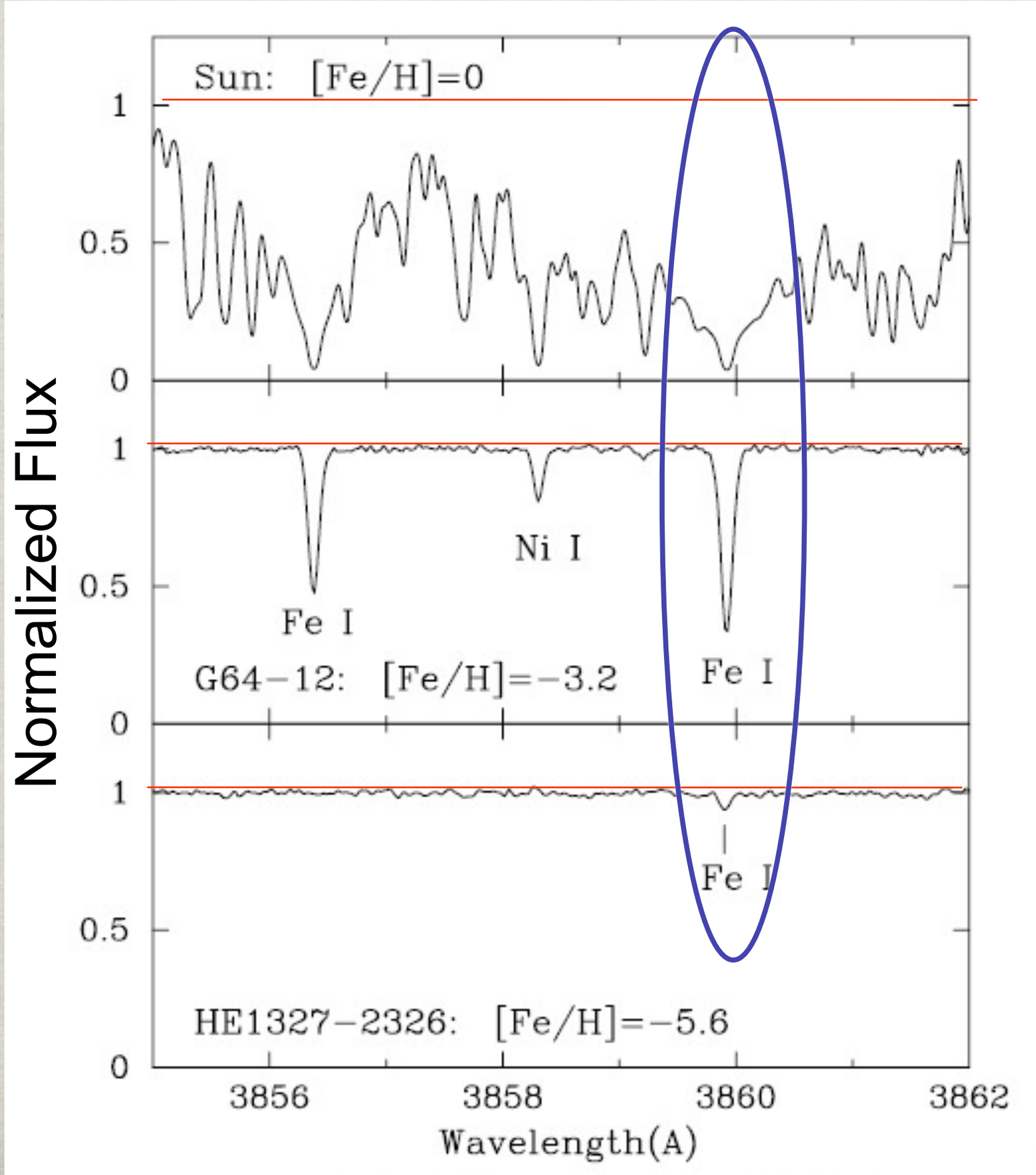
[Metallicity and Relative abundance]

$[Fe/H]=\log(X_{Fe}/X_H) - \log(X_{Fe}/X_H)_\odot$

ex) [Fe/H] = 0 : solar

= -∞ : Pop. III

Stellar Spectra (Fe line)



Aoki et al. 2006

Metallicity Distribution Function of Extremely Metal-Poor Stars

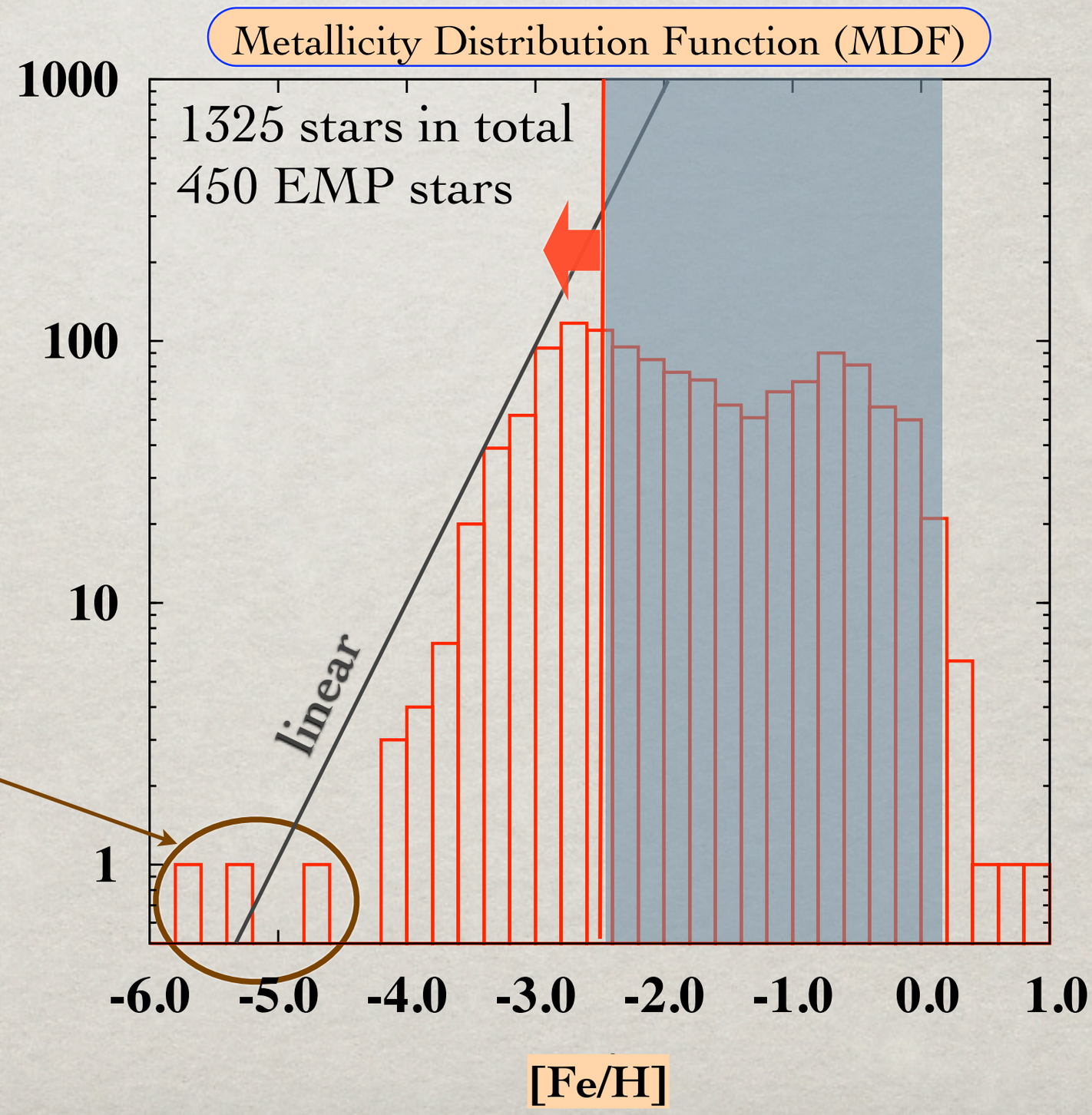
HK surveys (Beers+1992) + HES survery (Christlieb+2001)

- ☆Extremely Metal-Poor (EMP) stars : [Fe/H]<-2.5
- ☆Hyper Metal-Poor (HMP) stars: [Fe/H]~-5

HE0107-5240 : -5.3
: Christlieb et al.(2002)

HE1327-2326 : -5.4
: Frebel et al.(2005),
Aoki et al.(2006)

HE0557-4940 : -4.8
: Norris et al.(2007)



Data from SAGA database (Suda et al. 2008)
http://saga.sci.hokudai.ac.jp

The Stellar Abundances for Galactic Archaeology (SAGA) Database

Suda et al. (2008, PASJ, 60, 1159-1171)

http://saga.sci.hokudai.ac.jp/

http://astro.keele.ac.uk/saga/ (UK mirror)

1. 観測データの収集
   - ☆ 銀河系ハロー内の恒星の組成解析を行った文献
     - ☆ [Fe/H]<-2.5の星を含む論文
2. 大気モデル変数、元素組成などの採録
   - ☆ データ登録システムを利用
3. 採録データの利用
   - ☆ データ検索システム

DATA SAMPLE as of May, 2010

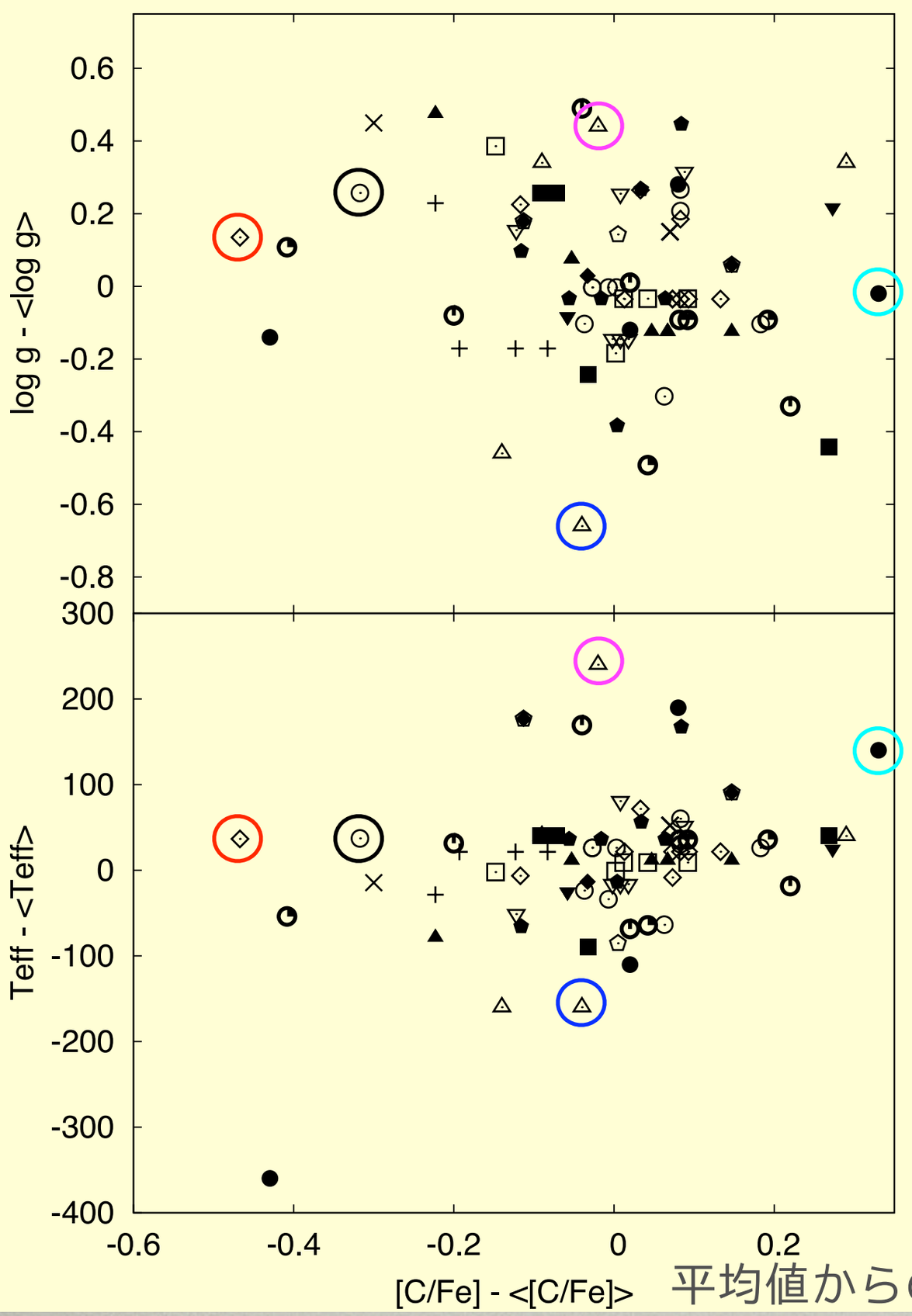
論文数: 158 (covering since 2000)

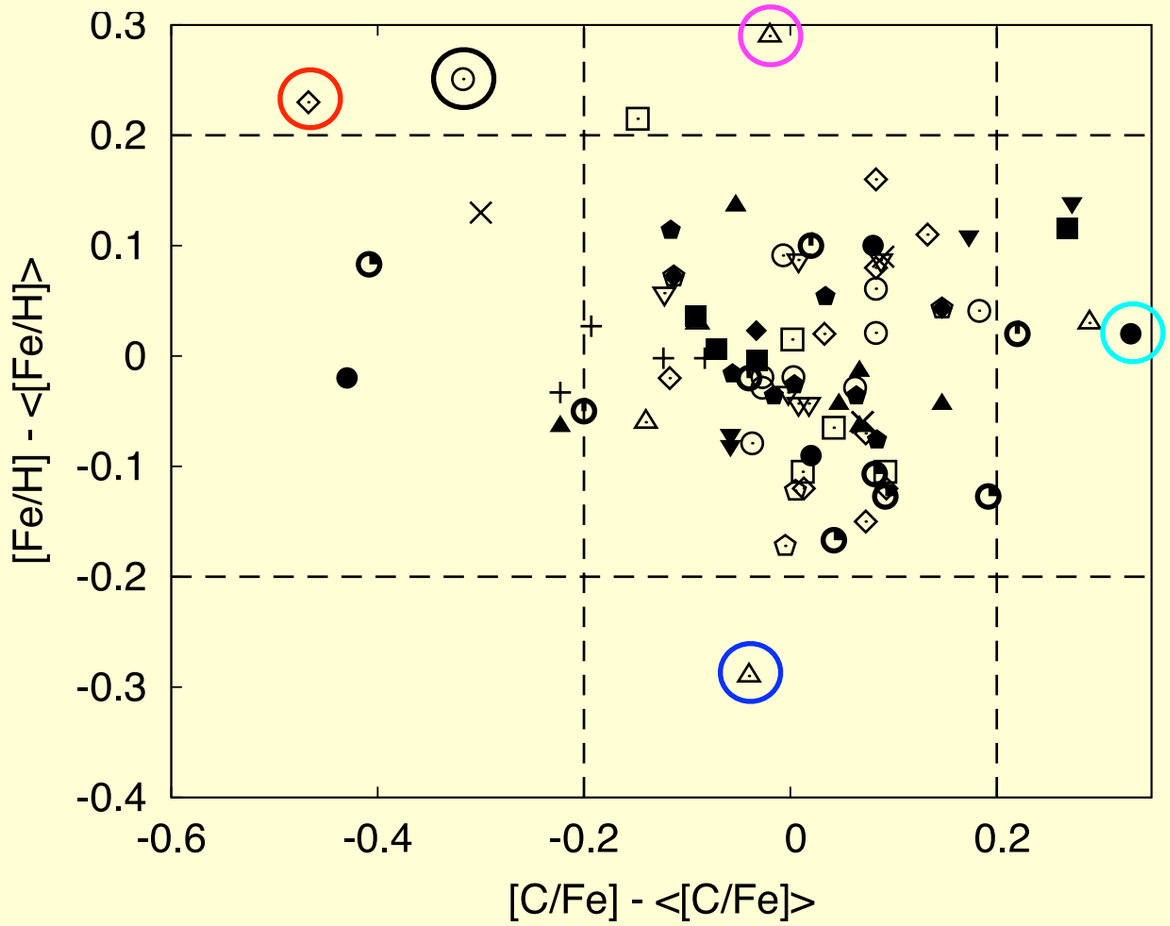
恒星の数: のべ3444 (1386天体)

データ数

[X/Fe]: 19,853
[X/H]: 23,775
logε: 23,775

Consistency Check





BD+17 3248
BD-18 5550
CS22169-035
CS22878-101
CS22885-096
CS22892-052(c)
CS22898-027(c,d)
CS22948-027(c)
CS22949-037(c)
CS31082-001
CD-38 245
HD122563
HD128279
HD140283(d)
HD186478
HD221170
HD2796

c: C-rich
d: dwarf

Suda et al. (2008)

平均値からのずれ

システム概要

- Perl CGI + MySQL + gnuplotを利用したWebシステム
  - 原子核反応データベースのシステム（日本荷電粒子反応グループ: JCPRG, 北大原子核グループ）をモチーフにしている。
  - （核反応データベース検索システムの開発に従事）

www.jcprg.org

SPES

Search and Plot Executive System

NOTE:
- wildcards available by asterisk (*)
- logical OR combination by semicolon (;)
- logical AND combination among fields

Manual (English) Manual (Japanese)

本システムは、電源開発促進対策特別会計法に基づく文部科学省からの受託事業の一部として、東京工業大学・日本原子力研究開発機構(旧日本原子力研究所)・北海道大学・住友原子力工業(株)が実施した平成14～18年度「高度放射線測定技術による革新炉用原子核データに関する研究開発」の成果です。

This system is developed as a part of a joint project "Fundamental R&D on Neutron Cross Sections for Innovative Reactors using Advanced Radiation Measurement Technology" (2002—2006) undertaken by Tokyo Institute of Technology, Japan Atomic Energy Agency (formerly Japan Atomic Energy Research Institute), Hokkaido University, Sumitomo Nuclear Power Industries Ltd., under the special grant on measures promoting the development of electric power resources by the Ministry of Education, Culture, Sports, Science and Technology of Japan.

Query

search | example 1 | example 2 | reset

Database Version of August 9, 2010

Reaction and Quantity	
Target	(e.g. Li-6)
Projectile	(e.g. n) or Select light particle or process or Select from all options
Reaction	(e.g. n) or Select light particle or process or Select from all options
Product	(e.g. He-4)
Quantity	Select from quantity list
Energy Range	to Unit : any Type : any
Plot	
Horizontal axis (1)	Select the category any
Horizontal axis (2)	Select the category any
Vertical axis	any
Display	
Display	50 results per page ☑ in order of publication year (for EXFOR)
Bibliography	
Author	☐ First Author (e.g., O.Schwerer)
Reference	Select journal (Type first character of journal name)
Publication Year	to
Database	☑ EXFOR ☑ ENDF ☑ Exclude combination ☑ Exclude superseded data
Data number	(e.g. 20670, 20670002)
Advanced search	
EXFOR quantity	Select from CINDA quantity Select from EXFOR Quantity SF5 : any SF6 : any SF7 : any SF8 : any Explicit form (SF5-9) :
ENDF quantity	Select NSUB Select MF Select MT Select LR

SAGA

[Front page] [Edit | Freeze | Diff | Backup | Upload | Reload] [New | List of pages | Search | Recent changes | Help]

Menu

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- List of objects
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- Devel/DatabaseBugs
- Devel/DatabaseToDo
- Devel/DatabaseImprove
- Devel/DatabaseMemo

recent(20)

2010-07-30(Fri)
- Devel/DatabaseInput
- Devel/DatabaseHistory /Retrieval

2010-07-29(Thu)
- SAGA

2010-06-24(Thu)
- SudaMemo

2010-04-21(Wed)
- Devel/DatabaseHistory /Tools

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- Devel/DatabaseHistory /Registration
- Registration/History
- Devel/DatabaseHistory/
- Registration/HowToRegi

2010-02-16(Tue)
- Devel/DatabaseBugs

2010-02-06(Sat)
- Devel/DatabaseImprove

2010-01-19(Tue)
- Devel/WikiUpdate

2010-01-05(Tue)
- Devel/PapersUpdate

2009-12-21(Mon)
- LicenseTest

2009-06-04(Thu)
- Devel/DatabaseHistory /NewServer

2009-04-14(Tue)
- Devel/DatabaseHistory /Editor

2009-04-02(Thu)
- Devel/DatabaseHistory/

2009-02-20(Fri)
- Devel/DatabaseImprove /Dictionaries
- Devel/DatabaseHistory /Dictionaries
- Devel/DatabaseDictiona

SAGA -Stellar Abundances for Galactic Archeology Database-

For Users

- SAGA top page

For Developers

データ登録はこちらから

- Entry List

データ入力システム

検索システム

- Retrieval System

システム情報

- Mailing list archive
- Access log (SAGA)
  - Access log astro3（ほぼ利用停止）
- たぶん最新のtable structure
- Devel/DatabaseDictionaries--辞書ファイル

データベース更新

- Registration/History--データ登録履歴
- Registration/HowToRegister--データ登録の方法

データ採録、システム開発関連

- Devel/WikiUpdate--wikiの更新情報
- Devel/DatabaseInput--入力進捗状況
- Devel/PapersUpdate--新規論文追加情報
- Devel/DatabaseHistory--システム更新情報
  - Devel/DatabaseHistory/List--文献リスト管理システム
  - Devel/DatabaseHistory/Editor--データ入力システム
  - Devel/DatabaseHistory/Registration--データ登録システム
  - Devel/DatabaseHistory/Retrieval--データ検索システム
  - Devel/DatabaseHistory/Lib-- ライブラリ
  - Devel/DatabaseHistory/Tools-- ツール
  - Devel/DatabaseHistory/NewServer--新サーバに関する情報
  - Devel/DatabaseHistory/Dictionaries--辞書ファイル
  - Devel/DatabaseHistory/Others--その他の更新情報
- Devel/DatabaseBugs--バグ報告
- Devel/DatabaseToDo--やるべきこと
- Devel/DatabaseImprove--ダメ出し・改善案など
  - Devel/DatabaseImprove/Dictionaries--辞書ファイル更新の要望はこちら
- Devel/DatabaseMemo--その他雑多なメモ

Entry List

Entry >> <<	Data	Reference sort by Author: >> << sort by Year: >> <<	Title	Authors	Date >> <<	Status
A0001	6.0 KByte	Aoki et al.,ApJ,536,L97,2000	DETECTION OF LEAD IN THE CARBON-RICH, VERY METAL-POOR STAR LP 625-44: A STRONG CONSTRAINT ON s-PROCESS NUCLEOSYNTHESIS AT LOW METALLICITY	W.Aoki, J.E.Norris, S.G.Ryan, T.C.Beers, H.Ando	2007-07-13	Compiled
A0002	5.1 KByte	Johnson and Bolte,ApJ,579L,87,2002	Abundances in the Very Metal Poor s-Processrich Star CS 22183-015	J.A.Johnson, M.Bolte	2005-10-03	compiled.
A0003	12.9 KByte	Sneden et al.,ApJ,591,936,2003	THE EXTREMELY METAL-POOR, NEUTRON CAPTURE–RICH STAR CS 22892-052: A COMPREHENSIVE ABUNDANCE ANALYSIS	C.Sneden, J.J.Cowan, J.E.Lawler, I.I.Ivans, S.Burles, T.C.Beers, F.Primas, V.Hill, J.W.Truran, G.M.Fuller, B.Pleiffer, K-L.Kratz	2005-10-03	compiled.
A0004	8.9 KByte	Lucatello et al.,AJ,125,875,2003	STELLAR ARCHAEOLOGY: A KECK PILOT PROGRAM ON EXTREMELY METAL-POOR STARS FROM THE HAMBURG/ESO SURVEY. III. THE LEAD (Pb) STAR HE 0024-2523	S.Lucatello, R.Gratton, J.G.Cohen, T.C.Beers, N.Christlieb, E.Carretta, S.Ramirez	2005-10-03	compiled.
A0005	7.4 KByte	Depagne et al.,A&A,390,187,2002	First Stars II. Elemental abundances in the extremely metal-poor star CS 22949–037 A diagnostic of early massive supernovae	E.Depagne, V.Hill, M.Spite, F.Spite, B.Plez, T.C.Beers, B.Barbuy, R.Cayrel, J.Andersen, P.Bonifacio, P.Francois, B.Nordstrom, F.Primas	2007-06-29	Compiled.
A0006	7.8 KByte	Cohen et al.,ApJ,588,1082,2003	ABUNDANCE ANALYSIS OF HE 2148-1247, A STAR WITH EXTREMELY ENHANCED NEUTRON CAPTURE ELEMENTS	J.G.Cohen, N.Christlieb, Y.-Z.Qian, G.J.Wasserburg	2007-06-29	Compiled
A0007	25.5 KByte	Aoki et al.,ApJ,567,1166,2002	The Chemical Composition of Carbon-rich, Very Metal Poor Stars: A New Class of Mildly Carbon Rich Objects without Excess of Neutron-Capture Elements	W.Aoki, J.E.Norris, S.G.Ryan, T.C.Beers, H.Ando	2007-06-29	Compiled.
A000	6 KByte	Cowan et al.,ApJ,572,861,2002	THE CHEMICAL COMPOSITION AND AGE OF THE METAL-POOR HALO STAR BD +173248	J.J.Cowan, C.Sneden, S.Burles, I.I.Ivans, T.C.Beers, J.W.Truran, J.E.Lawler, F.Primas, G.M.Fuller, B.Pleiffer, K-L.Kratz	2007-06-29	Compiled.
A0009	6 KByte	Hill et al.,A&A,387,560,2002	First stars. I. The extreme r-element rich, iron-poor halo giant CS 31082-001 Implications for the r-process site(s) and radioactive cosmochronology?	V.Hill, B.Prez, R.Cayrel, T.C.Beers, B.Nordstrom, J.Andersen, M.Spite, F.Spite, B.Barbuy, P.Bonifacio, E.Depagne, P.Francois	2007-06-29	Compiled.
A0010	9.7 KByte	Aoki et al.,ApJ,576,L141,2002	CHEMICAL COMPOSITION OF THE CARBON-RICH, EXTREMELY METAL POOR STAR CS 29498-043: A NEW CLASS OF EXTREMELY METAL POOR STARS WITH EXCESSES OF MAGNESIUM AND SILICON	W.Aoki, J.E.Norris, S.G.Ryan, T.C.Beers, H.Ando	2005-09-30	Compiled
A0011	30.4 KByte	Aoki et al.,ApJ,580,1149,2002	A SUBARU/HIGH DISPERSION SPECTROGRAPH STUDY OF LEAD (Pb) ABUNDANCES IN EIGHT s-PROCESS ELEMENT–RICH, METAL-POOR STARS	W.Aoki, S.G.Ryan, J.E.Norris, T.C.Beers, H.Ando, S.Tsangarides	2007-06-29	Compiled.
A0012	26.1 KByte	Norris et al.,ApJ,561,1034,2001	EXTREMELY METAL-POOR STARS. VIII. HIGH-RESOLUTION, HIGH SIGNAL-TO-NOISE RATIO ANALYSIS OF FIVE STARS WITH [Fe/H]<=-3.5	J.E.Norris, S.G.Ryan, T.C.Beers	2007-06-29	Compiled.
A0013	10.3 KByte	Aoki et al.,ApJ,561,346,2001	NEUTRON CAPTURE ELEMENTS IN s-PROCESSÈRICH, VERY METAL-POOR STARS	W.Aoki, S.G.Ryan, J.E.Norris, T.C.Beers, H.Ando, N.Iwamoto, T.Kajino, G.J.Mathews, M.Y.Fujimoto	2007-06-29	Compiled.
A0014	166.8 KByte	Burris et al,ApJ,544,302,2000	NEUTRON-CAPTURE ELEMENTS IN THE EARLY GALAXY: INSIGHTS FROM A LARGE SAMPLE OF METAL-POOR GIANTS	D.L.Burris, C.A.Pilachowski, T.E.Armandroff, C.Sneden, J.J.Cowan, H.Roe	2006-05-25	Only [X/Fe] is compiled.
A0015	22.5 KByte	Van Eck et al.,A&A,404,291,2003	More lead stars	S.VanEck, S.Goriely, A.Jorissen, B.Plez	2004-11-18	Only [X/Fe] is compiled.
A0016	158.8 KByte	Cayrel et al.,A&A,416,1117,2004	First stars V - Abundance patterns from C to Zn and supernova yields in the early Galaxy	R.Cayrel, E.Depagne, M.Spite, V.Hill, F.Spite, P.Francois, B.Plez, T.Beers, F.Primas, J.Andersen, B.Barbuy, P.Bonifacio, P.Molaro, B.Nordstrom	2007-06-29	Compiled.
A0017	124.9 KByte	Honda et al.,ApJ,607,474,2004	Spectroscopic Studies of Extremely Metal-Poor Stars with the Subaru High Dispersion Spectrograph. II. The r-Process Elements, Including Thorium	S.Honda, W.Aoki, T.Kajino, H.Ando, T.C.Beers, H.Izumiura, K.Sadakane, M.Takada-Hidai	2005-09-30	Compiled
A0018	8.4 KByte	Sivarani et al.,A&A,413,1073,2004	First stars IV. CS 29497-030: Evidence for operation of the s-process at very low metallicity	T.Sivarani, P.Bonifacio, P.Molaro, R.Cayrel, M.Spite, F.Spite, B.Plez, J.Andersen, B.Barbuy, T.C.Beers, E.Depagne, V.Hill, P.Francois, B.Nordstrom, F.Primas	2005-09-30	Compiled
A0019	19.3 KByte	Francois et al.,A&A,403,1105,2003	First Stars. III. A detailed elemental abundance study of four extremely metal-poor giant stars	P.Francois, E.Depagne, V.Hill, M.Spite, F.Spite, B.Plez, T.C.Beers, B.Barbuy, R.Cayrel, J.Andersen, P.Bonifacio, P.Molaro, B.Nordstrom, F.Primas	2005-09-30	Compiled.
A0020	40.5 KByte	Sneden et al.,ApJ,592,504,2003	Binary Blue Metal-poor Stars: Evidence for Asymptotic Giant Branch Mass Transfer	C.Sneden, G.W.Preston, J.J.Cowan	2005-09-09	Compiled
A0021	42.7 KByte	Christlieb et al.,A&A,428,1027,2004	The Hamburg/ESO R-process Enhanced Star survey (HERES)	N.Christlieb, T.C.Beers, P.S.Barklem, M.Bessell, V.Hill, J.Holmberg, A.J.Korn, B.Marsteller, L.Mashonkina, Y-Z.Qian, S.Rossi, G.J.Wasserburg, F-J.Zickgraf, K-L.Kratz, B.Nordstrom, B.Pfeiffer, J.Rhee, S.G.Ryan	2005-09-09	Compiled
A0022	200.9 KByte	Lai et al.,AJ,128,2402,2004	ABUNDANCES OF EXTREMELY METAL-POOR STAR CANDIDATES	D.K.Lai, M.Bolte, J.A.Johnson, S.Lucatello	2005-09-16	Data Compiled.
A0023	33.9 KByte	Bai et al.,A&A,425,671,2004	Chemical abundances of 10 metal-poor halo stars	G.S.Bai, G.Zhao, Y.Q.Chen, J.R.Shi, V.G.Klochkova, V.E.Panchuk, H.M.Qiu, H.W.Zhang	2006-06-18	Compiled.
A0024	7.2 KByte	Christlieb et al.,APJ,603,708,2004	HE 0107-5240, A CHEMICALLY ANCIENT STAR. I. A DETAILED ABUNDANCE ANALYSIS	N.Christlieb, B.Gustafsson, A.J.Korn, P.S.Barklem, T.C.Beers, M.S.Bessell, T.Karlsson, M.Mizuno-Wiedner	2005-09-17	Compiled.
A0025	82.2 KByte	Spite et al.,A&A,430,655,2005	First stars VI – Abundances of C, N, O, Li, and mixing in extremely metal-poor giants. Galactic evolution of the light elements	M.Spite, R.Cayrel, B.Plez, V.Hill, F.Spite, E.Depagne, P.Francois, P.Bonifacio, B.Barbuy, T.Beers, J.Andersen, P.Molaro, B.Nordstrom, F.Primas	2006-06-18	Compiled.
A0026	3.0 KByte	Bessell et al.,ApJ,612,L61,2004	ON THE OXYGEN ABUNDANCE OF HE 0107-5240	M.S.Bessell, N.Christlieb, B.Gustafsson	2005-09-20	Compiled.
A0027	6.4 KByte	Aoki et al.,ApJ,608,971,2004	Oxygen Overabundance in the Extremely Iron-poor Star CS 29498-043	W.Aoki, J.E.Norris, S.G.Ryan, T.C.Beers, N.Christlieb, S.Tsangarides, H.Ando	2005-09-20	Compiled.
A0028	47.2 KByte	Carretta et al.,AJ,124,481,2002	STELLAR ARCHAEOLOGY: A KECK PILOT PROGRAM ON EXTREMELY METAL-POOR STARS FROM THE HAMBURG/ESO SURVEY. II. ABUNDANCE ANALYSIS	E.Carretta, R.Gratton, J.G.Cohen, T.C.Beers, N.Christlieb	2007-06-29	Compiled.
A0029	22.6 KByte	Cohen et al.,AJ,124,470,2002	STELLAR ARCHAEOLOGY: A KECK PILOT PROGRAM ON EXTREMELY METAL-POOR STARS FROM THE HAMBURG/ESO SURVEY. I. STELLAR PARAMETERS	J.G.Cohen, N.Christlieb, T.C.Beers, R.Gratton, E.Carretta	2005-09-20	Compiled.
A0030	3.3 KByte	Norris et al.,ApJ,569,L107,2002	EXTREMELY METAL-POOR STARS. IX. CS 22949-037 AND THE ROLE OF HYPERNOVAE	J.E.Norris, S.G.Ryan, T.C.Beers, W.Aoki, H.Ando	2005-09-23	Compiled.

Reference List /Data Table Editor /All CSV Data /Debug Output /ADS Link /Edit CSV-file Directly /Common Data Editor /Data History /

各種ツール・リンク

Entry Number A0007 edit

Update History Time: 2010-05-03 13:06:15 by Suda Comment: revised Li abundance (remove upper limit for [Li/Fe]).

変更履歴

Reload CSV Files

Input

Bibliography

Title	The Chemical Composition of Carbon-rich, Very Metal Poor Stars: A New Class of Mildly Carbon Rich Objects without Excess of Neutron-Capture Elements

書誌情報

# of Authors(Institutes) : 5 -> submit

	Author	Affiliation	Institute	More ..
1 :	W.Aoki	1		
2 :	J.E.Norris	2		
3 :	S.G.Ryan	3		
4 :	T.C.Beers	4		
5 :	H.Ando	5		

Journal : The Astrophysical Journal : ApJ Volume : 567 Page : 1166 Year : 2002

convert GetAuthor

ADSから自動検索

Input 2

Observation

# of Object : 5 -> submit

	Object
1 :	CS22948-027
2 :	CS30314-067
3 :	CS22877-001
4 :	CS30312-100
5 :	CS29502-092

convert

天体リスト

Solar Abundances

# of Data 0 submit	Object	Element	Reference	Comment

Input 3

Data 1

Object Name	CS22948-027							
Position	Right Ascension :		Declination :		Galactic Longitude (l) :		Galactic Lattitude (b) :	
Observation # of Data 1 submit edit	Date	UT	JD	Telescope	Resolution	S/N	Exposure	Radial Velocity
	1994-06		2449520	UCLES on Anglo-Australian 3.9m Telescope	40000	51	75*3	-63.33+-0.56
Binary	○ Yes ○ No ◉ Unknown	Period :		Radial Velocity				
Photometry								

Input 3

Data 1

天体情報

Object Name	**CS22948-027**
Position	Right Ascension : Declination : Galactic Longitude (l) : Galactic Lattitude (b) :

Observation # of Data 1 submit edit	Date	UT	JD	Telescope	Resolution	S/N	Exposure	Radial Velocity
	1994-06		2449520	UCLES on Anglo-Australian 3.9m Telescope	40000	51	75*3	-63.33+-0.56

観測ログ

Binary: ○ Yes ○ No ◉ Unknown Period : Radial Velocity

Photometry # of Data 2 submit edit: V 12.66 B-V 1.13

測光データ

Stellar Parameters edit: Effective Temprature : 4600 Surface Gravity : 1.0 Microturburence : 2.2 Metallicity : -2.57

大気モデル

Abundances # of Column 5 submit

Element species	[X/Fe]	Nline	[X/H]	log-e
Cr I	+0.22+-0.14	4	NULL	NULL
Fe II	NULL	4	-2.56+-0.28	NULL
La II	+1.91+-0.15	1	NULL	NULL
Ba II	+1.85+-0.14	3	NULL	NULL
Y II	+0.80+-0.20	1	NULL	NULL
Li I	NULL	NULL	NULL	<1.0
N	+1.8+-0.24	NULL	NULL	NULL
Nd II	+1.69+-0.12	21	NULL	NULL
Ti II	+0.62+-0.18	2	NULL	NULL
Ca I	+0.53+-0.16	2	NULL	NULL
Na I	+0.68+-0.20	2	NULL	NULL

元素組成

Equivalent width 5 submit

Element species	Wavelength	EW	log-gf	Ex-potential
Na I	5889.95	209	0.11	0.000
Na I	5895.92	195	-0.19	0.000
Mg I	3829.35	NULL	-0.48	2.710
Mg I	3832.30	NULL	-0.13	2.710
Mg I	3838.30	NULL	-0.10	2.720
Mg I	4571.10	NULL	-5.61	0.000
Mg I	4703.00	NULL	-0.38	4.350
Mg I	5172.68	203	-0.38	2.710
Mg I	5183.60	275	-0.16	2.720
Mg I	5528.42	NULL	-0.34	4.340
Al I	3961.52	NULL	-0.34	0.000

等価幅

Isotope ratio 2 submit

Isotope	Value
12C13C	10

同位対比

convert

Input 3

Data 2

Object Name	**CS30314-067**
Position	Right Ascension : Declination : Galactic Longitude (l) : Galactic Lattitude (b) :

Observation # of Data 2 submit	Date	UT	JD	Telescope	Resolution	S/N	Exposure	Radial Velocity
	1997-08		2450684	UCLES on Anglo-Australian 3.9m Telescope	40000	95	60*2	+145.58+-0.29

Entry Number: A0007

Table Name
abundance submit

データタイプ

Number of Columns 3 submit

Abundance

Column Name	No.	Delta checkbox
Element species	1	+Delta -Delta
Object Name	2	+Delta -Delta
[X/Fe]	4	+Delta -Delta

テーブルカラムの情報

: LaTeX :TEXT :XML(VOTable) :HTML :CDS

テーブルの書式

Use FIELD elemnts in XML data Transform to text

Push/Pop column C push pop **Adjust column No. when push/pop**

th column + **by** operate

テーブルの編集

Transpose the Table: Transpose

Table Data

```
C       CS30314-067     -2.85   0.5     1.2     5       0.63    0.13    1
C       CS29502-092     -2.76   1.0     0.7     20      7.2     0.36    1
C       CS22948-027     -2.57   2.0     1.8     10      5.5     0.55    1
C       CS22877-001     -2.17   1.0     0.0     >10     36      <3.5    1
C       CS22957-027     -3.38   2.2     2.0     10      5.5     0.55    2
C       LP625-44        -2.68   1.95    1.65    20      7.2     0.36    3,4
```

テーブルデータ

add overwrite replace

NOTE: The replace option is available *only for the abundance and atmosphere* input

Overwrite Object List

convert リセット init

入力モード

Editor Suda

Comment [C/Fe] from Table 6.

入力ログ

REFRESH DMS-DATABASE Check History
Debug Output

観測情報の一括入力

Enter!

Object		date	UT	JD	Telescope	Res	S/N	Exp.	RV
	☑			テスト	Select				
CS22948-027 Add	☑	1994-06	N/A	2449520	UCLES on Anglo-Australian 3.9m Telescope	40000	51	75*3	-63.33+-0.56
CS30314-067 Add	☑	1997-08	N/A	2450684	UCLES on Anglo-Australian 3.9m Telescope	40000	95	60*2	+145.58+-0.29
	☑	1997-08	N/A		UCLES on Anglo-Australian 3.9m Telescope	40000	77	120*4	
CS22877-001 Add	☑	1998-04	N/A	2450914	UCLES on Anglo-Australian 3.9m Telescope	40000	77	60*2	+166.12+-0.25
	☑	1998-04	N/A		UCLES on Anglo-Australian 3.9m Telescope	40000	36	120*4	
CS30312-100 Add	☑	1998-04	N/A	2450914	UCLES on Anglo-Australian 3.9m Telescope	40000	57	120*4	-128.91+-0.28
CS29502-092 Add	☑	1998-08	N/A	2451039	UCLES on Anglo-Australian 3.9m Telescope	40000	73	60*2	-67.35+-0.27
	☑	1998-08	N/A		UCLES on Anglo-Australian 3.9m Telescope	40000	70	150*5	

Enter!

Editor Suda

Comment テスト入力

入力ログ

Screen Snapshot of SAGA Database

[[start]] SAGA

Show pagesource | Old revisions | Recent changes | Search

Trace: » start

SAGA -Stellar Abundances for Galactic Archeology Database-

Public since June 24th, 2008 (go to UK mirror site)

- Retrieval - Last update of the retrieval system on **Mar. 16, 2010** and the database on **Mar. 16, 2010**.
  - Previous Version of Sep. 2, 2009 - updated retrieval system on Jan. 18, 2010 and database on Sep. 2, 2009
  - Previous Version of May 5, 2009 - updated retrieval system on Feb. 3, 2009 and database on May 5, 2009
  - Previous Version of Feb. 3, 2009 - updated retrieval system on Feb. 3, 2009 and database on Dec. 5, 2008
  - Previous Version of Nov. 20, 2008 - updated database, but retrieval without data rating and search with isotopic ratios
- Info-Information and News on update history (Data published in 2009 are available now!)
- Tutorial-Tutorial for the data retrieval system
- List of papers
- List of objects
- FeedBacks-Please give us any questions, comments, and suggestions on data and database - not created yet
- Links-Links to related institute

Data Retrieval subsystem with previous versions

News and Information

How to search the data

Links to the data of papers and objects

Please cite the following paper if you think that the SAGA database is helpful in writing your paper.

"The Stellar Abundances for Galactic Archeology (SAGA) Database - Compilation of the Characteristics of Known Extremely Metal-Poor Stars"

T. Suda, Y. Katsuta, S. Yamada, T. Suwa, C. Ishizuka, Y. Komiya, K. Sorai, M. Aikawa, and M. Y. Fujimoto, **PASJ**, 2008, vol.60, 1159-1171

The paper is available at PASJ web site for free until the end of 2008 (probably still now).

Please contact saga-admin@astro1.sci.hokudai.ac.jp if you have any problems.

The SAGA database systems are maintained by Takuma Suda, Yutaka Katsuta, and Shimako Yamada.

License

Data Retrieval System for SAGA Database

SAGA Retrieval System

Last update of database: 2010-03-16 18:01:16

* not working
** Other options do not work.

Query

search | example | * | reset

X, Y軸を指定

Graph Options

Xaxis	Category	Li	[Fe/H]	From :	To :	Include data with upper limit
Yaxis				From :	To :	Include data with upper limit
Criterion +				From :	To :	Include data with upper limit

追加の検索条件

データ範囲指定

Category: Category / log-e / [X/H] / [X/Fe] / Atmospheric Parameters / Photometric Parameters / Binary Parameters / Position and Velocity / Isotopic Ratio

Li: Li / Li I / Be / Be II / C / C I / CH / C2 / N / CN / NH / O / O I / OH / F / F / Na / Na I / Mg / Mg I

Object	0107-5240", "CS", "0107"
Binarity	m To
Magnitude	Band : From mag
Resolution	< R <

ographical Criterion

Author	hor ex) "Lastname" strict / forward agr ward agreement / fuzzy
Reference	ALL
Publication Year	From To

Retrieval Options

Display / Page	10
Order by**	Object
Output Option	single file
Histogram Option	Range (necessary for histgram)
Cross Search	cross papers

Output Option: separated files / single file / histgram

search | example | * | reset

SAGA SEARCH RESULT

Search Result

plot | restart | reset | plot_all

Results : 420

#		Object	Reference	[Fe/H]	Teff	logg	[Fe/H]	log-e(Li)
1	☐	BD-09_4604	C.Charbonnel+,AAP, 442, 961, 2005	-1.38	5660	4	◉-1.38	◉2.121
2	☐	BD-10_155	C.Charbonnel+,AAP, 442, 961, 2005	-2.87	5008	3	◉-2.87	◉1.018
3	☐	BD-10_388	C.Charbonnel+,AAP, 442, 961, 2005	-2.51	6287	3.85	◉-2.51	◉2.257
4	☐	BD-12_3709	C.Charbonnel+,AAP, 442, 961, 2005	-1.34	5278	3	◉-1.34	◉1.268
5	☐	BD-14_5890	C.Charbonnel+,AAP, 442, 961, 2005	-2.07	4885	3	◉-2.07	◉1.025
			B.W.Carney+,AJ, 125, 293, 2003	-2.01	4840	2.1	○-2.01	
6	☐	BD-15_6355	C.Charbonnel+,AAP, 442, 961, 2005	-1.83	6349	4	◉-1.83	◉2.351
7	☐	BD-17_6692	C.Charbonnel+,AAP, 442, 961, 2005	-1.87	5065	3	◉-1.87	◉0.911
			M.Spite+,AAP, 430, 655, 2005	-3.06	4750	1.4	○-3.06	◉0.75
			D.L.Burris+,ApJ, 544, 302, 2000	-3	4575	1.4	○-2.93	
			R.Cayrel+,AAP, 416, 1117, 2004	-3.06	4750	1.4	○-3.06	
			J.A.Johnson+,ApJS, 139, 219, 2002	-2.9	4600	0.95	◉-3.03	
			A.McWilliam+,AJ, 109, 2757, 1995				○-2.91	
			J.Melendez+,ApJ, 575, 474, 2002	-2.87	4683	1.7	○-2.87	
			T.V.Mishenina+,AAP, 396, 189, 2002				○-3.01	
8	☐	BD-18_5550	T.V.Mishenina+,AAP, 370, 951, 2001	-3.01	4600	0.5	○-3.01	
			M.Spite+,AAP, 455, 291, 2006	-3.06	4750	1.4	○-3.06	
			S.M.Andrievsky+,AAP, 464, 1081, 2007	-3.06	4750	1.4	○-3.06	
			J.A.Johnson+,ApJ, 658, 1203, 2007	-2.89	4806	1.72	○-2.89	
			G.Bihain+,AAP, 423, 777, 2004	-3.01	4668	1.5	○-3.01	
			B.W.Carney+,AJ, 125, 293, 2003	-3.11	4820	1.8	○-3.11	
			S.M.Andrievsky+,AAP, 481, 481, 2008	-3.06	4750	1.4	○-3.06	
			J.A.Johnson+,ApJ, 579, 616, 2002				○-3.04	
			J.A.Johnson+,ApJ, 554, 888, 2001	-2.9	4600	0.95	○-3.05	
9	☐	BD-20_6718	C.Charbonnel+,AAP, 442, 961, 2005	-1.23	5064	3	◉-1.23	◉0.953
10	☐	BD-21_3420	R.Smiljanic+,ApJ, 644, L121, 2006	-1.04	5946	3.96	○-1.04	◉1.95
			E.Caffau+,AAP, 441, 533, 2005	-1.04	5946	4.41	◉-1.04	

previous | next

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42

PAGE : 7 / 42

文献ごとの採用されて大気モデル

プロットするデータを指定

検索されたデータの値。二つ以上のデータがある場合は一つが自動的に選ばれる（変更は可能）。

HTML形式のデータクイックビューへのリンク

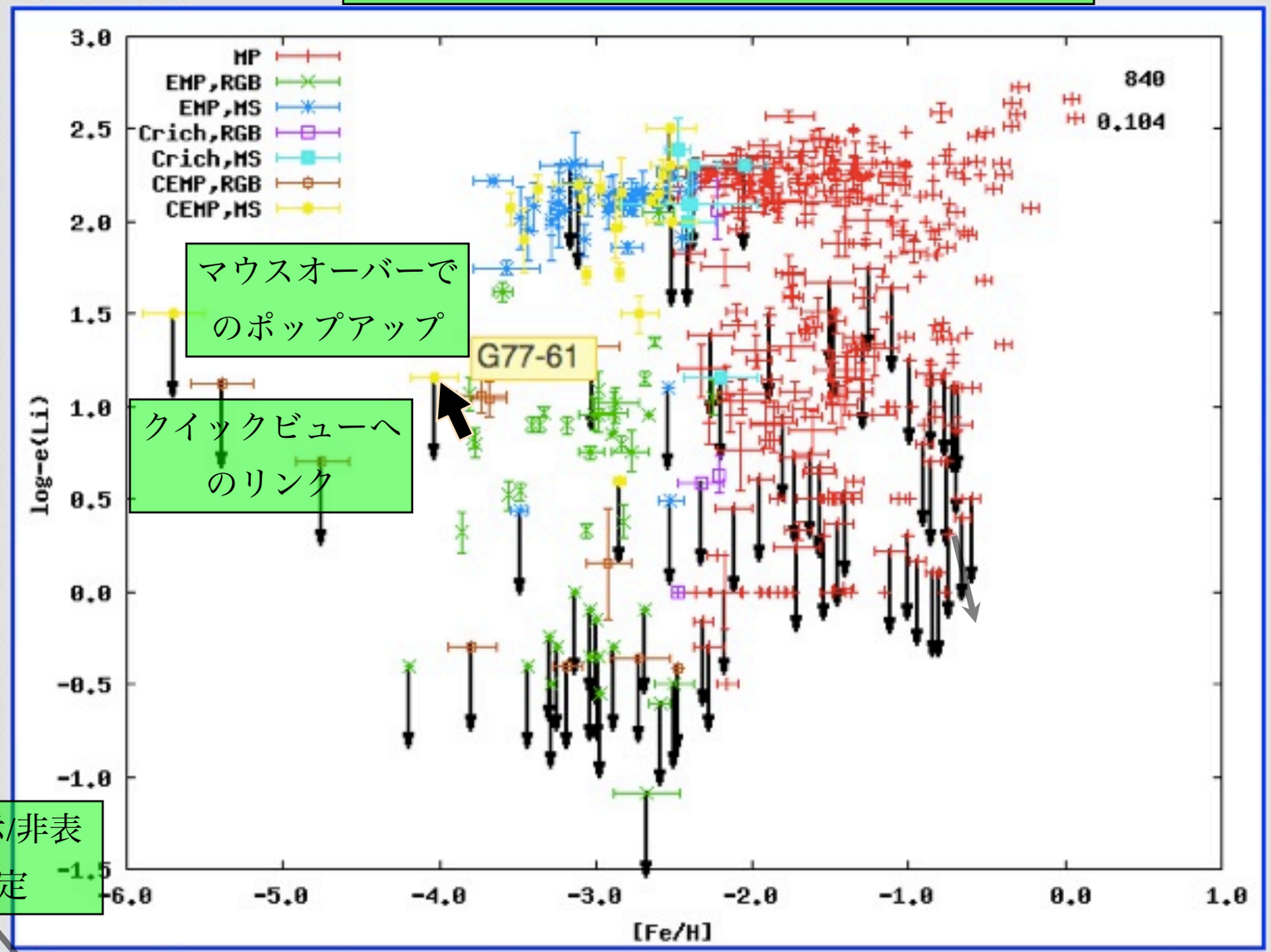
Plot

Graph plot

* not working

クリッカブルマップによる各データへのリンク

設定変更後の再プロット



マウスオーバーでのポップアップ

クイックビューへのリンク

plot reset

Title

LEGEND

Left Top　Right Top
Left Bottom　Right Bottom
No Key　Outside

LABEL

X : [Fe/H]
Y : log-e(Li)

図の表示設定(gnuplotのオプションに準拠)

SCALE

X : Linear　Logscale
Y : Linear　Logscale

Range

X Low : *　High : *
Y Low : *　High : *

> or < *

データ表示/非表示の設定

plot reset Delete all restart

Data		Legend	Size	Type*	Del*
1 :	☑	MP	1	1	☐
2 :	☑	EMP,RGB	1	2	☐
3 :	☑	EMP,MS	1	3	☐
4 :	☑	Crich,RGB	1	4	☐
5 :	☑	Crich,MS	1	5	☐
6 :	☑	CEMP,RGB	1	6	☐
7 :	☑	CEMP,MS	1	7	☐

リストから消去

数値データへのリンク

Download Figures
Color Figures
png ps eps pdf
Download Data
download

表示されている図を再現するデータとスクリプトのダウンロード

Load upload files
Upload Data*
UpLoad
Input Data* plot reset

DATATYPE=

BPS CS22892-052: found in 18 paper(s).

QUICK PREVIEW OF DATA

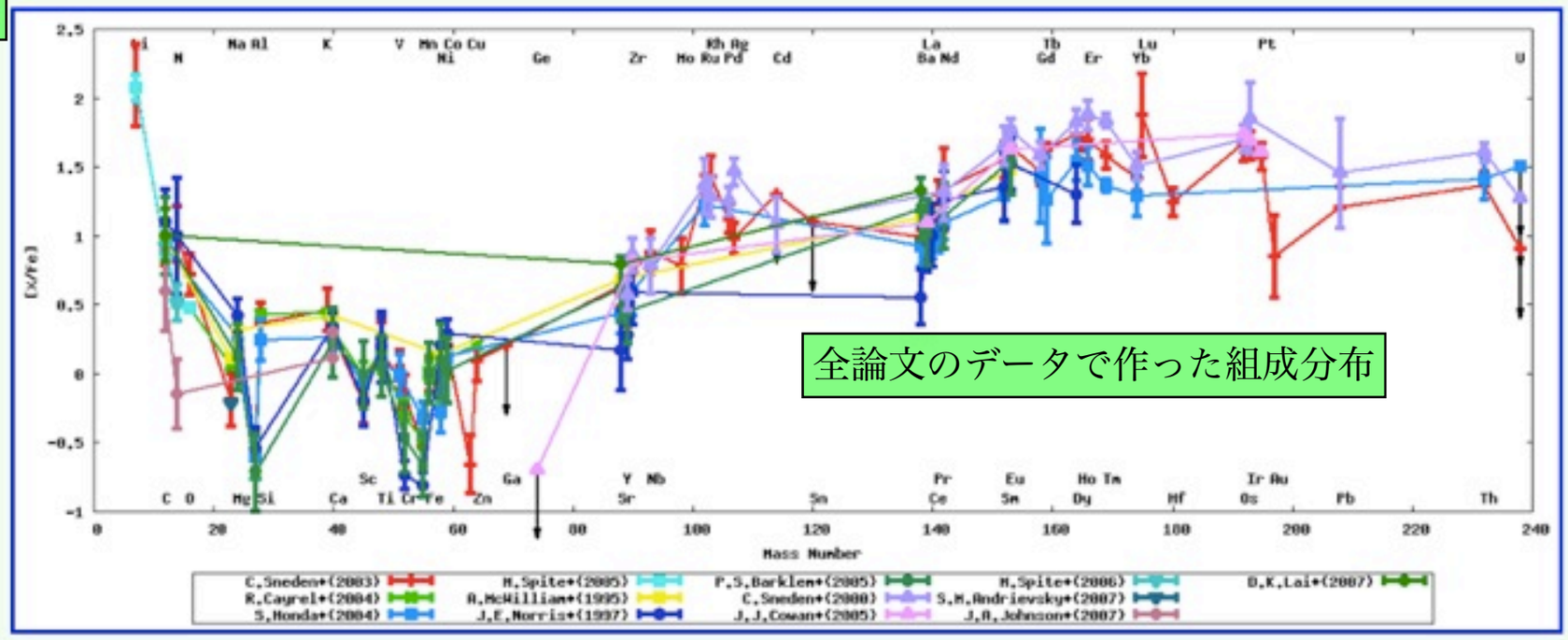
Labels:

/C.Sneden et al.(2003)/ /R.Cayrel et al.(2004)/ /S.Honda et al.(2004)/ /N.Christlieb et al.(2004)/ /M.Spite et al.(2005)/ /A.McWilliam et al.(1995)/ /A.McWilliam et al.(1995)/ /J.E.Norris et al.(1997)/ /G.W.Preston and C. Sneden(2001)/ /P.S.Barklem et al.(2005)/ /C.Sneden et al.(2000)/ /W.Aoki et al.(2003)/ /J.J.Cowan et al.(2005)/ /S.Honda et al.(2004)/ /M.Spite et al.(2006)/ /S.M.Andrievsky et al.(2007)/ /J.A.Johnson et al.(2007)/ /D.K.Lai et al.(2007)/

この天体のデータを含む文献一覧

SIMBADへのリンク

Find this object in SIMBAD



全論文のデータで作った組成分布

C.Sneden et al.,ApJ, 591, 936, 2003 (A0003,ADS)

文献のクイックビューへのリンク、ADSへのリンク

Atmospheric data

T_{eff} : 4800	log g : 1.50	v_{turb} : 1.95

大気モデル変数

Chemical Abundances

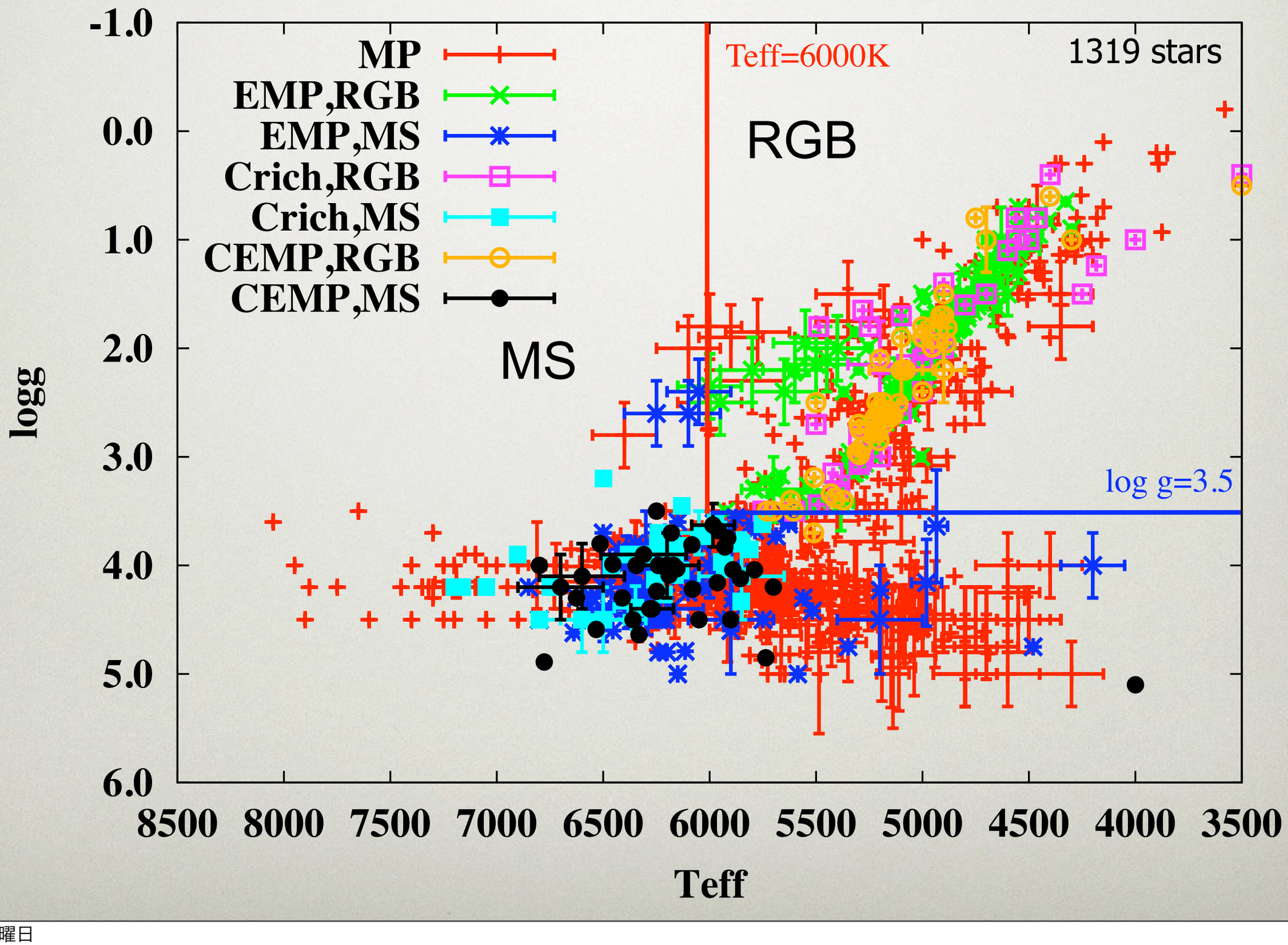
Element	Nline	[X/H]	[X/Fe]	log-e
Li I	...	-1.01+-0.30	2.09+-0.30	+0.15+-0.30
CH	...	-2.22+-0.10	+0.88+-0.10	+6.30+-0.10
CN	...	-2.09+-0.20	+1.01+-0.20	+5.83+-0.20
O I	...	-2.38+-0.15	+0.72+-0.15	+6.45+-0.15
Na I	...	-3.29+-0.19	-0.19+-0.19	+3.04+-0.19
Mg I	...	-2.87+-0.08	+0.30+-0.08	+4.78+-0.08
Al I	...	-3.68+-0.15	-0.58+-0.15	+2.79+-0.15
Si I	...	-2.74+-0.15	+0.36+-0.15	+4.81+-0.15

: Data presented in the paper
: Data converted with the solar abundance from Grevesse et al. (1996)

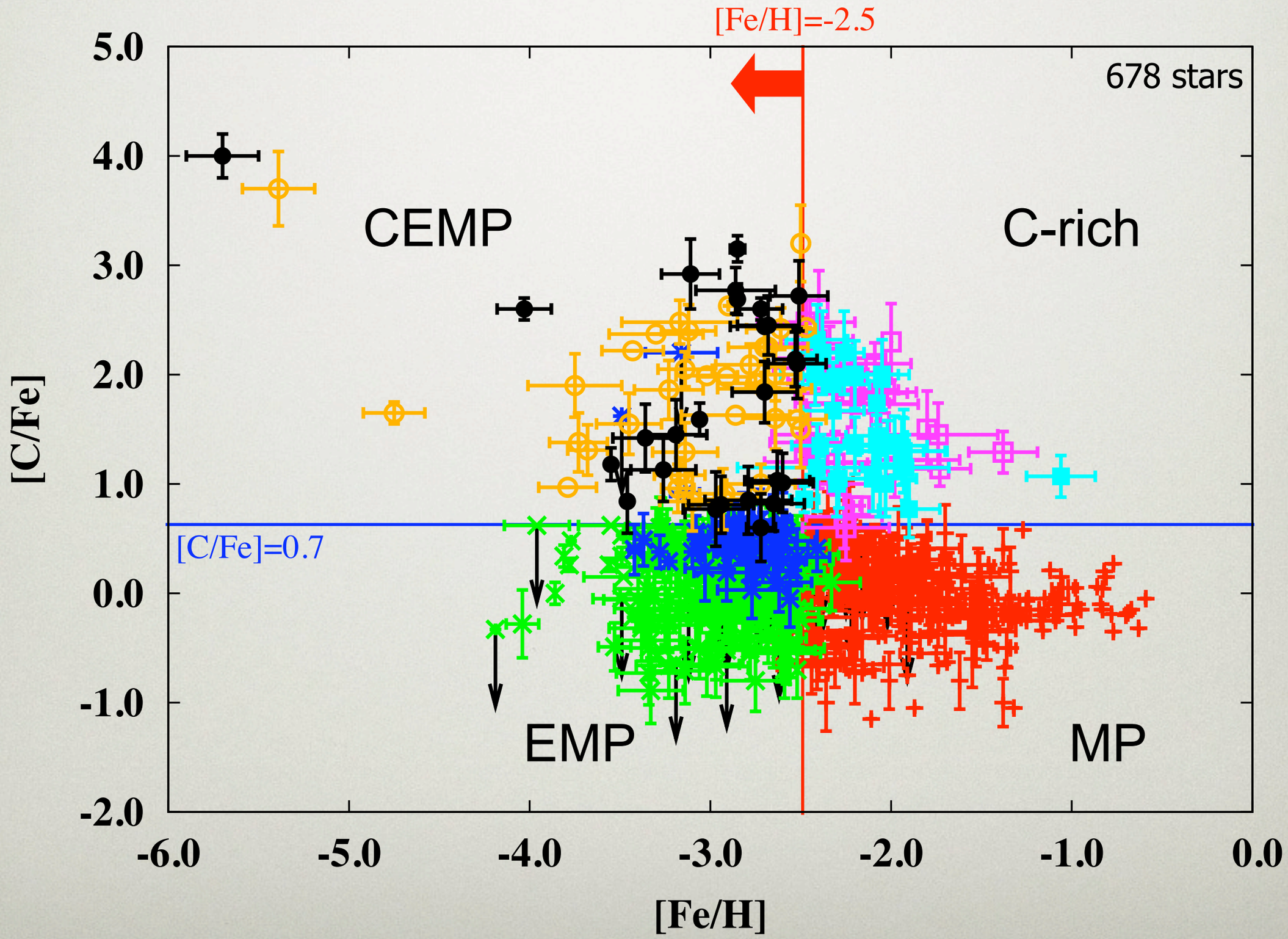
組成データ

＋測光データ、観測ログ、連星に関する情報

Colour-Magnitude Diagram



Carbon Enhancement



Chemical Enrichment of Our Galaxy(1)

線形回帰

[X/H]=a[Fe/H]+b

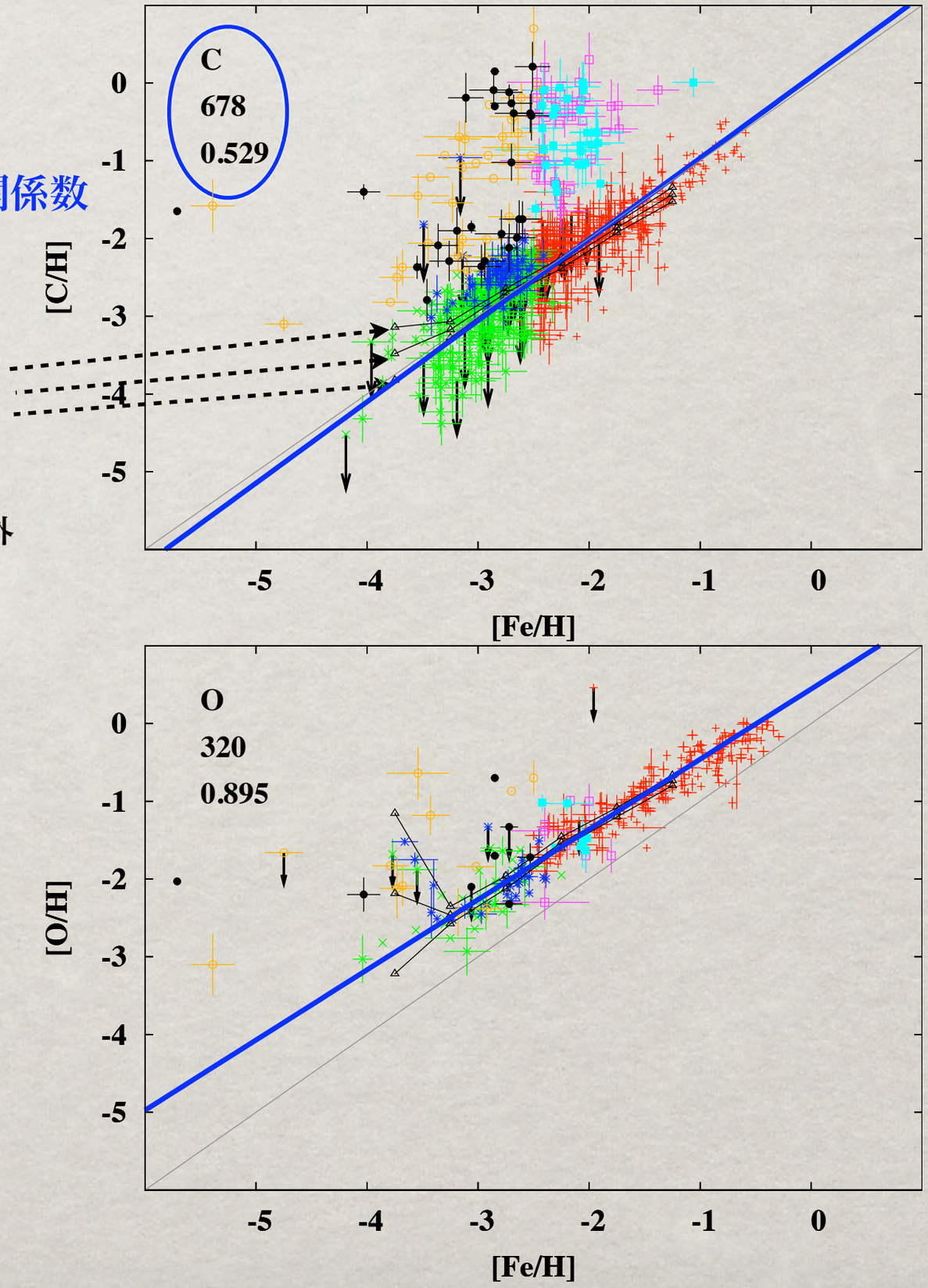
- ☆ 統計ソフト"R" (http://www.r-project.org/) を用いたReduced Major Axis (II型線形回帰)
- ☆ [Fe/H]<-1までのデータの内、Upper Limitでないもの

元素名

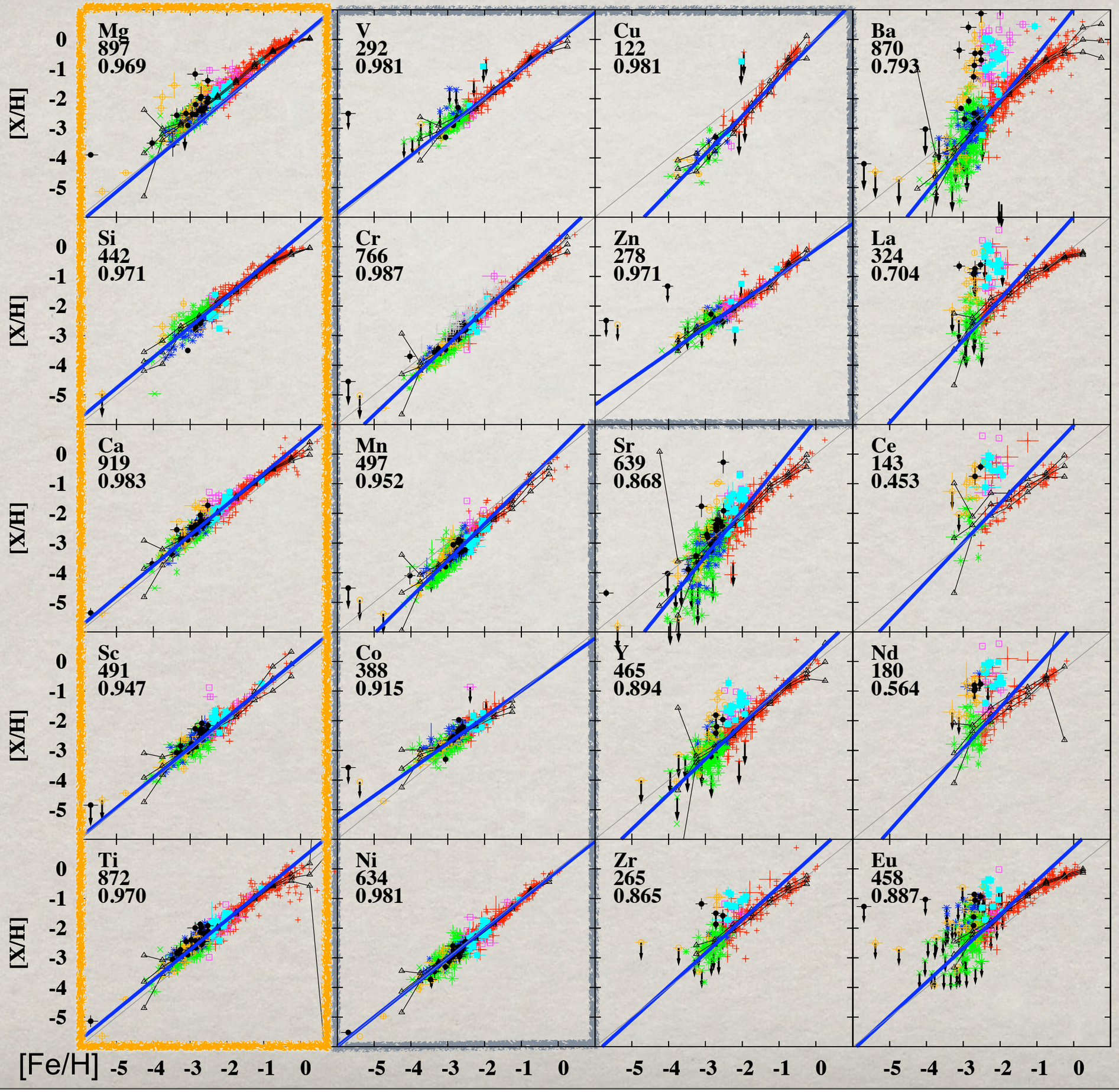
天体数

Pearson相関係数

0.5 dex binの平均値とその95%信頼区間
(ただし、V-Zn以外についてはC-rich groupsは除外。.)



Chemical Enrichment of Our Galaxy(2)



Summary of Linear Regression

元素名	aの平均値	aの誤差	aの下限	aの上限	bの平均値	bの誤差	bの下限	bの上限
C	1.045	0.025	0.996	1.094	0.0796	0.062	-0.041	0.200
O	0.903	0.023	0.858	0.947	0.444	0.048	0.348	0.539
Mg	1.045	0.118	1.021	1.068	0.448	0.029	0.392	0.505
Si	1.034	0.020	0.995	1.073	0.399	0.046	0.309	0.490
Ca	1.037	0.092	1.019	1.055	0.377	0.022	0.333	0.421
Sc	1.018	0.016	0.987	1.049	0.146	0.042	0.064	0.229
Ti	1.017	0.011	0.995	1.039	0.319	0.027	0.266	0.373
V	0.971	0.022	0.928	1.015	-0.035	0.051	-0.136	0.066
Cr	1.183	0.010	1.163	1.203	0.244	0.026	0.194	0.295
Mn	1.237	0.021	1.196	1.278	-0.104	0.050	-0.203	-0.050
Co	0.887	0.018	0.851	0.923	-0.104	0.050	-0.203	-0.005
Ni	0.989	0.012	0.966	1.012	-0.053	0.030	-0.111	0.006
Cu	1.281	0.042	1.197	1.366	-0.017	0.102	-0.220	0.185
Zn	0.873	0.020	0.833	0.913	-0.089	0.049	-0.186	0.008
Sr	1.573	0.036	1.466	1.608	1.169	0.092	0.989	1.350
Y	1.183	0.026	1.131	1.235	0.257	0.063	0.133	0.382
Zr	1.124	0.044	1.037	1.212	0.533	0.101	0.334	0.733
Ba	1.548	0.031	1.487	1.212	1.014	0.073	0.870	1.158
La	1.391	0.073	1.247	1.536	1.017	0.155	0.710	1.323
Ce	1.318	0.121	1.08	1.559	0.973	0.253	0.468	1.479
Nd	1.383	0.097	1.190	1.577	1.213	0.218	0.781	1.644
Eu	1.142	0.042	1.059	1.226	0.742	0.095	0.555	0.929

Simplified Chemical Evolution

以下の過程に基づく化学進化モデル

☆超新星爆発のyieldは星間空間で一様に混ざる。

☆すべてのyieldはprogenitorの質量と金属量に依存する。

☆IMF は -4 < [Fe/H] < -1の間で変化しない。

$$\frac{\langle Y_i \rangle}{\langle Y_{\rm Fe} \rangle} = \frac{dX_{i,\rm ISM}}{dX_{\rm Fe,ISM}} = a \frac{X_{i,\odot}}{X_{\rm Fe,\odot}} 10^{(a-1)[\rm Fe/H]+b}$$

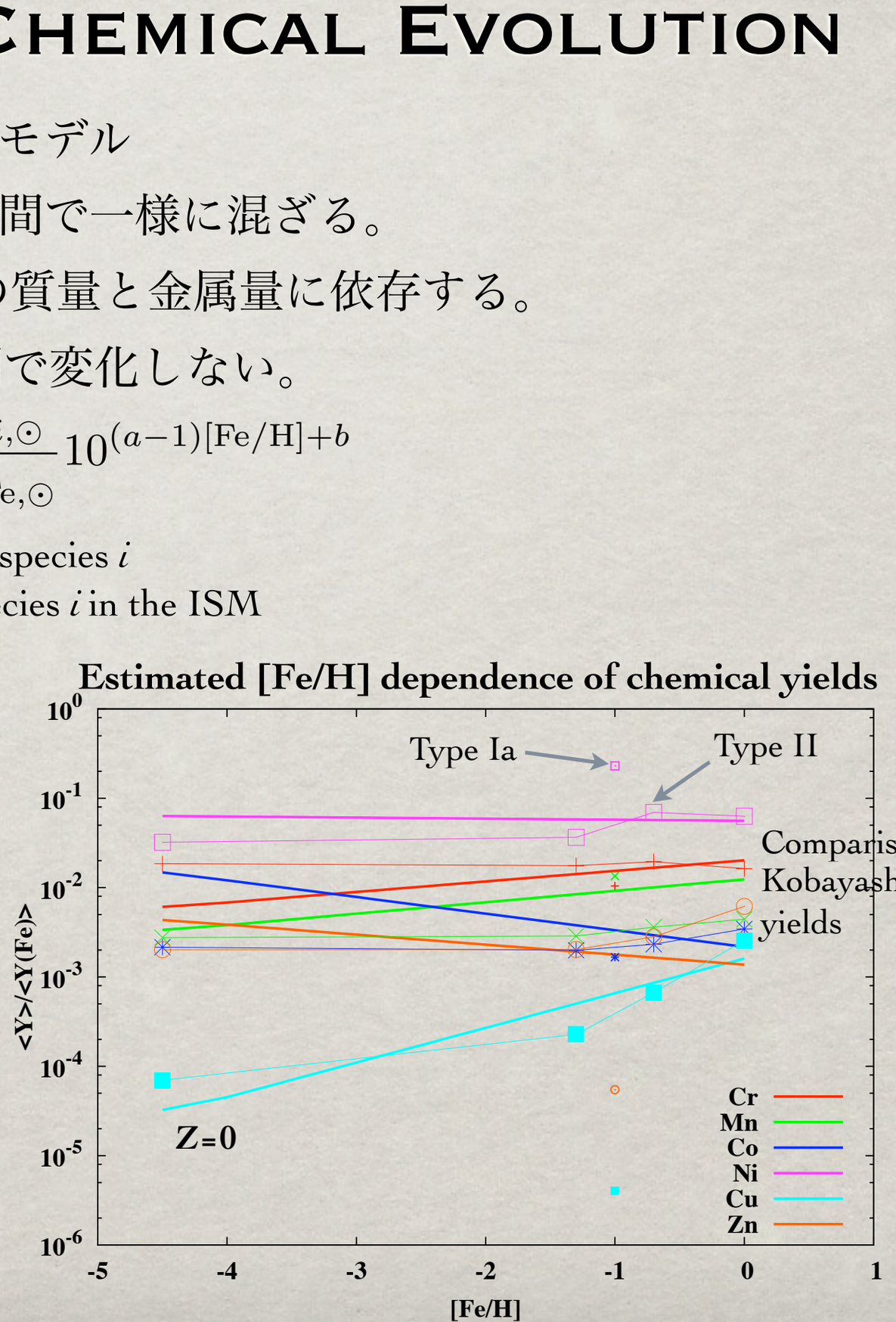
$\langle Y_i \rangle$: IMF average yield of species i

$X_{i,\rm ISM}$: mass fraction of species i in the ISM

Estimated chemical yields by Pop. III SNe

Element	$\langle Y \rangle / \langle Y_{\rm Fe} \rangle$
Cr	6.09×10^{-3}
Mn	3.37×10^{-3}
Co	1.48×10^{-2}
Ni	6.32×10^{-2}
Cu	3.25×10^{-5}
Zn	4.33×10^{-3}

Estimated [Fe/H] dependence of chemical yields



Comparison with Kobayashi et al. (2006) yields

Summary

- SAGA database
  - http://saga.sci.hokudai.ac.jp/
  - 銀河ハロー金属欠乏星の観測データを簡単に検索して作図、ダウンロードが可能
- ハロー星の元素組成データから銀河系の化学進化に制限を与えられる。
  - 超新星yieldの振る舞いを線形回帰によって解析した。
  - 線形回帰の傾きと切片がα-元素、鉄属元素、中性子捕獲元素で有意に異なる。
  - α-元素は鉄の生成過程と異なると考えられているにも関わらず、ほぼ完全な相関が見られる。
  - O, Co, Znに共通した傾きの違いが見られる。
  - 線形回帰の傾きの変化からIMF averaged yieldの比が求められる。