



Publication Year	2015
Acceptance in OA	2020-03-25T16:35:36Z
Title	VizieR Online Data Catalog: Lick indices for FGK stars (Franchini+, 2014)
Authors	FRANCHINI, Mariagrazia, MOROSSI, Carlo, DI MARCANTONIO, Paolo, Malagnini, M. L., Chavez, M.
Handle	http://hdl.handle.net/20.500.12386/23563
Journal	VizieR Online Data Catalog



J/MNRAS/442/220 Lick indices for FGK stars (Franchini+, 2014)

The FEROS-Lick/SDSS observational data base of spectral indices of FGK stars for stellar population studies.

Franchini M., Morossi C., Marcantonio P.D., Malagnini M.L., Chavez M.
<Mon. Not. R. Astron. Soc., 442, 220-228 (2014)>
=[2014MNRAS.442..220F](#)

ADC_Keywords: Stars, late-type ; Spectroscopy ; Abundances

Keywords: astronomical data bases: miscellaneous -
stars: fundamental parameters - stars: late-type

Abstract:

We present FEROS-Lick/SDSS, an empirical data base of Lick/SDSS spectral indices of FGK stars to be used in population synthesis projects for discriminating different stellar populations within the integrated light of galaxies and globular clusters. From about 2500 FEROS stellar spectra obtained from the European Southern Observatory Science Archive Facility, we computed line-strength indices for 1085 non-supergiant stars with atmospheric parameter estimates from the AMBRE project. Two samples of 312 dwarfs and of 83 subgiants with solar chemical composition and no significant α -element abundance enhancement are used to compare their observational indices with the predictions of the Lick/SDSS library of synthetic indices. In general, the synthetic library reproduces very well the behaviour of observational indices as a function of temperature, but in the case of low-temperature ($T_{\text{eff}} \lesssim 5000\text{K}$) dwarfs; low-temperature subgiants are not numerous enough to derive any conclusion. Several possible causes of the disagreement are discussed and promising theoretical improvements are presented.

Description:

The stars observed by FEROS and studied by the AMBRE project (Worley et al., [2012A&A...542A..48W](#)) constitute an ideal working data set for our purposes since they include a large number of non-supergiant FGK stars with individual estimates of T_{eff} , $\log g$, $[M/H]$, and α -to-iron ratio ($[\alpha/\text{Fe}]$).

We searched the European Southern Observatory (ESO) Science Archive Facility and retrieved, through the FEROS/HARPS pipeline processed data Query Form, all the public available spectra of FGK stars with AMBRE atmospheric parameter values in the following ranges: $3800 < T_{\text{eff}} < 7500\text{K}$, $\log g > 3.5$, and global metallicity $[M/H] > -3.0$.

A list of 1085 stars, corresponding to 2511 available spectra, was obtained. Since AMBRE provides individual estimates of stellar parameters derived from each spectrum, we computed for 202 stars with more than one observed spectrum average atmospheric parameter values. In any case, the dispersion of values for the same object resulted to be less than the external errors associated with AMBRE results.

File Summary:

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
table1.dat	309	1085	Table of observational Lick/SDSS indices of 1085 FGK FEROS stars

Byte-by-byte Description of file: [table1.dat](#)

Bytes	Format	Units	Label	Explanations
1- 23	A23	---	Name	Star name
25- 26	I2	---	Nsp	[1/97] Number of spectra (1)
28- 31	I4	K	Teff	[3830/7420] Effective temperature
33- 35	I3	K	e_Teff	[0/110] rms uncertainty on Teff
37- 40	F4.2	[cm/s2]	logg	[3.5/5] Surface gravity
42- 45	F4.2	[cm/s2]	e_logg	[0/0.18] rms uncertainty on logg
47- 51	F5.2	[Sun]	[M/H]	[-2.5/0.8] Metallicity
53- 56	F4.2	[Sun]	e_[M/H]	[0/0.1] rms uncertainty on [M/H]
58- 62	F5.2	[Sun]	[a/Fe]	[-0.4/0.5]?=- [alpha/Fe] abundance
64- 67	F4.2	[Sun]	e_[a/Fe]	[0/0.1]?=- rms uncertainty on [alpha/Fe]
69- 74	F6.3	0.1nm	CaHK	?=- Lick Ca H&K index
76- 80	F5.3	0.1nm	e_CaHK	?=- rms uncertainty on CaHK
82- 86	F5.3	mag	CN1	?=- Lick CN ₁ index
88- 92	F5.3	mag	e_CN1	?=- rms uncertainty on CN1
94- 98	F5.3	mag	CN2	?=- Lick CN ₂ index
100-104	F5.3	mag	e_CN2	?=- rms uncertainty on CN2
106-110	F5.3	0.1nm	Ca4227	?=- Lick Ca4227 index
112-116	F5.3	0.1nm	e_Ca4227	?=- rms uncertainty on Ca4227

118-123	F6.3	0.1nm	G4300	?=- Lick G4300 index
125-129	F5.3	0.1nm	e_G4300	?=- rms uncertainty on G4300
131-136	F6.3	0.1nm	Fe4383	?=- Lick Fe4383 index
138-142	F5.3	0.1nm	e_Fe4383	?=- rms uncertainty on Fe4383
144-149	F6.3	0.1nm	Ca4455	?=- Lick Ca4455 index
151-155	F5.3	0.1nm	e_Ca4455	?=- rms uncertainty on Ca4455
157-162	F6.3	0.1nm	Fe4531	?=- Lick Fe4531 index
164-168	F5.3	0.1nm	e_Fe4531	?=- rms uncertainty on Fe4531
170-175	F6.3	0.1nm	Hbeta	?=- Lick H β index
177-181	F5.3	0.1nm	e_Hbeta	?=- rms uncertainty on Hbeta
183-188	F6.3	0.1nm	Fe5015	?=- Lick Fe5015 index
190-194	F5.3	0.1nm	e_Fe5015	?=- rms uncertainty on Fe5015 *
196-200	F5.3	mag	Mg1	?=- Lick Mg ₁ index
202-206	F5.3	mag	e_Mg1	?=- rms uncertainty on Mg1
208-212	F5.3	mag	Mg2	?=- Lick Mg ₂ index
214-218	F5.3	mag	e_Mg2	?=- rms uncertainty on Mg2
220-225	F6.3	0.1nm	Mgb	?=- Lick Mg _b index
227-231	F5.3	0.1nm	e_Mgb	?=- rms uncertainty on Mgb
233-238	F6.3	0.1nm	Fe5270	?=- Lick Fe5270 index
240-244	F5.3	0.1nm	e_Fe5270	?=- rms uncertainty on Fe5270
246-251	F6.3	0.1nm	Fe5335	?=- Lick Fe5335 index
253-257	F5.3	0.1nm	e_Fe5335	?=- rms uncertainty on Fe5335
259-264	F6.3	0.1nm	Fe5406	?=- Lick Fe5406 index
266-270	F5.3	0.1nm	e_Fe5406	?=- rms uncertainty on Fe5406
272-277	F6.3	0.1nm	Fe5709	?=- Lick Fe5709 index
279-283	F5.3	0.1nm	e_Fe5709	?=- rms uncertainty on Fe5709
285-290	F6.3	0.1nm	Fe5782	?=- Lick Fe5782 index
292-296	F5.3	0.1nm	e_Fe5782	?=- rms uncertainty on Fe5782
298-303	F6.3	0.1nm	NaD	?=- Lick NaD index
305-309	F5.3	0.1nm	e_NaD	?=- rms uncertainty on NaD

Note (1): The atmospheric parameters Teff, log g, [M/H], and [a/Fe], and index values are averaged values in the case of more than one spectrum (see text).

History:

From electronic version of the journal

(End)

Patricia Vannier [CDS] 25-Feb-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](#)

© Université de Strasbourg/CNRS

f     [Contact](#) 