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J/A+A/601/A56 NGC 6802 dwarf cluster members and non-members (Tang+, 2017)

The Gaia-ESO Survey: the inner disk intermediate-age open cluster NGC 6802.
 Tang B., Geisler D., Friel E., Villanova S., Smiljanic R., Casey A.R.,
 Randich S., Magrini L., San Roman I., Munoz C., Cohen R.E., Mauro F.,
 Bragaglia A., Donati P., Tautvaisiene G., Drazdauskas A., Zenoviene R.,
 Snaith O., Sousa S., Adibekyan V., Costado M.T., Blanco-Cuaresma S.,
 Jimenez-Esteban F., Carraro G., Zwitter T., Francois P., Jofre P.,
 Sordo R., Gilmore G., Flaccomio E., Koposov S., Korn A.J., Lanzafame A.C.,
 Pancino E., Bayo A., Damiani F., Franciosini E., Hourihane A., Lardo C.,
 Lewis J., Monaco L., Morbidelli L., Prisinzano L., Sacco G., Worley C.C.,
 Zaggia S.
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 =[2017A&A...601A..56T](#) (SIMBAD/NED BibCode)

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Keywords: open clusters and associations: individual: NGC 6802 -
 open clusters and associations: general - star: abundances

Abstract:

Milky Way open clusters are very diverse in terms of age, chemical composition, and kinematic properties. Intermediate-age and old open clusters are less common, and it is even harder to find them inside the solar Galactocentric radius, due to the high mortality rate and strong extinction inside this region. NGC 6802 is one of the inner disk open clusters (IOCs) observed by the \$Gaia\$-ESO survey (GES). This cluster is an important target for calibrating the abundances derived in the survey due to the kinematic and chemical homogeneity of the cluster members in open clusters. Using the measurements from \$Gaia\$-ESO internal data release 4 (iDR4), we identify 95 dwarf main-sequence stars as cluster members from the GIRAFFE target list, and 8 red giants as cluster members from the UVES target list. The dwarf cluster members have a median radial velocity of 13.6 ± 1.9 km/s, while the giant cluster members have a median radial velocity of 12.0 ± 0.9 km/s and a median [Fe/H] of 0.10 ± 0.02 dex. The color-magnitude diagram of these cluster members suggests an age of 0.9 ± 0.1 Gyr, with $(m-M)_0 = 11.4$ and $E(B-V) = 0.86$. We perform the first chemical abundance analysis of NGC 6802, including 27 element species. To gain a more general picture about IOCs, the measurements of NGC 6802 are compared with those of other IOCs previously studied by GES, i.e., NGC 4815, Trumpler 20, NGC 6705, and Berkeley 81. NGC 6802 shows similar C, N, Na, and Al abundances as other IOCs. The abundance versus cluster turn-off mass for these elements in the five GES IOCs cannot firmly exclude any one of the competing nucleosynthetic models, including: standard models; models with rotation induced mixing and/or thermohaline mixing. The five GES IOCs, particularly NGC 6802, seem to have higher s-process element abundances than that of the inner disk field stars.

Description:

The dwarf stars in NGC 6802 observed by GIRAFFE spectrograph are separated into four tables:
 1. cluster members in the lower main sequence;
 2. cluster members in the upper main sequence;
 3. non-member dwarfs in the lower main sequence;
 4. non-member dwarfs in the upper main sequence.
 The star coordinates, V band magnitude, V-I color, and radial velocity are given.

File Summary:

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
lms.dat	48	45	Dwarf cluster members in the lower main sequence
ums.dat	48	50	Dwarf cluster members in the upper main sequence
lmsno.dat	48	43	Non-member dwarfs in the lower main sequence
umsno.dat	48	45	Non-member dwarfs in the upper main sequence

Byte-by-byte Description of file: [lms.dat](#) [ums.dat](#) [lmsno.dat](#) [umsno.dat](#)

Bytes	Format	Units	Label	Explanations
1- 3	I3	---	Seq	Row number
5- 20	A16	---	Name	Name (HHMMSSss+DDMMSSs, J2000.0)
22- 27	F6.3	mag	Vmag	V band magnitude
29- 33	F5.3	mag	V-I	V-I color index
35- 40	F6.2	km/s	RV	Radial velocity
42- 46	F5.2	km/s	e_RV	Error of radial velocity
48	A1	---	sp	[Y] Indication of stars belong to the second peak of the radial velocity distribution (for umsno.dat only)

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(End)

Patricia Vannier [CDS] 08-Nov-2016

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