Giada Casali

Curriculum Vitae

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Date of birth: 1991, December 24
Citizenship: Italian

Affiliations

✉ Department of Physics and Astronomy, University of Bologna, Via Gobetti 93/2, 40129 Bologna (BO) - Italy

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Research Interests

- Galactic archaeology
- Stellar spectroscopy
- Chemical abundances
- Star clusters
- Chemical evolution & structure of the Milky Way
- Stellar age determination using chemical clocks and isochrone fitting

Professional Experience

2021 - Present **Postdoctoral Fellow**, *Department of Physics and Astronomy*, University of Bologna, (BO) Italy.

Project ERC - Asterochronometry: Galactic archaeology with high temporal resolution

Education

2017 - 2021 **PhD in Physics and Astronomy**, *Curriculum: Astronomy*, University of Florence, INAF - Osservatorio Astrofisico di Arcetri, (FI) Italy.
Defence: March 9, 2021

Abroad Stay of 6 months at Monash University, Melbourne, AUS

Thesis *Galactic Archaeology with ages based on chemical clocks*

Supervisors Dr. Laura Magrini (INAF-OAA) and Prof. Stefania Salvadori (UniFI)

Collaborator Dr. Lorenzo Spina (INAF-OAPd)

2014 - 2017 **Master's Degree in Physics**, *Curriculum: Astronomy and Astrophysics*, University of Pisa, (PI) Italy, with a final grade of 108/110.
Defence: July 20, 2017

Thesis *Near-Infrared Photometry of the Galactic Globular Cluster M30 (NGC 7099)*

Supervisors Prof. Pier Giorgio Prada Moroni (UniPI) and Prof. Giuseppe Bono (Uni-Roma2)

Collaborator Dr. Massimo Dall'Ora (INAF-OAC)

2010 - 2014 **Bachelor's Degree in Physics**, University of Pisa, (PI) Italy, with a final grade of 101/110.
Defence: February 28, 2014

Thesis *The fluctuation-dissipation theorem and its application to thermal noise in the EGO-VIRGO interferometer.*

Supervisor Dr. Giancarlo Cella (INFN-Pisa)

Collaborations

- Gaia-ESO consortium
- SPA, a large observing programme at the TNG
- Working group of ARIEL (stellar characterisation)
- Working group of LSST (Stars, Milky Way and Local Volume)
- Working group of MAVIS

Observing experiences

2020, Feb 10 - 11 **Observations with SOFI, EFOSC2@NTT, DFOSC@Danish, HARPS@ESO 3.6 m**, *La Silla Observatory*, Chile, Observations during the "La Silla Observing Summer School 2020".

2019, Dec 04 - 08
2018, Aug 18 - 24 **Observations with GIARPS@TNG**, *El Roque de los Muchachos Observatory*, La Palma, Canary Islands (SP), Proposal: SPA 2018.
(Program ID A37TAC_13, PI: L. Origlia)

PhD schools

2021, June 1 - 5 **Summer School in Statistics for Astronomers XVI**, *virtual*, Penn State (US).

2020, Feb 03 - 14 **La Silla Observing Summer School**, *ESO*, Santiago de Chile (CL), *Report*.

2018, Sept 10 - 14 **IMPRS-HD School: Gaia data & Science**, *Max Planck Institute*, Heidelberg (DE).

2018, Feb 26 - Mar 9 **FNHP2018 School: Frontiers in Nuclear and Hadronic Physics**, *Galileo Galilei Institute*, Florence (IT).

Conferences and workshops

2021, June 28 - July 2 **EAS 2021**, *virtual meeting*, Leiden (NL).
Contribute: Talk – A more insightful view on Galactic archaeology using chemical clocks

2021, Feb 1 - 3 **Precision Spectroscopy. Stellar connections: from Galaxy evolution to exoplanets**, *virtual meeting*, Sao Paulo (BR).
Contribute: Talk – Galactic archaeology with chemical clocks

2019, Sept 24 - 27 **GES2019: The legacy of the Gaia-ESO survey**, Florence (IT).
Contribute: Talk – Stellar dating using chemical clocks

2018, Sept 3 - 7 **Workshop ESO: A revolution in stellar physics with Gaia and large surveys**, Warsaw (PL).
Contribute: Poster – Calibrating the relationship between age and [C/N] using open clusters

2016, April 12 - 14 **Workshop ADONI: Adaptive Optics National Laboratory**, Florence (IT).

Seminars and other talks

2021, Mar 29 **KES: Knowledge Exchange Series**, *virtual seminar*, ESO Garching (DE).
Contribute: Talk – "Galactic Archaeology in the era of large-scale surveys"

2021, Mar 22 **Asterochronometry Seminars**, *virtual seminar*, University of Birmingham (UK).
Contribute: Talk – "Galactic Archaeology with ages based on chemical clocks"

2020, Nov. 27 **SPOK**, *internal meeting of the star and star forming regions group*, INAF - Osservatorio Astrofisico di Arcetri (FI), Italy.
Contribute: Talk – "Hunting for an extragalactic planet around an accreted star in the Galactic halo".

2019, Aug. 6 **SINS**, *internal meeting of the stellar group*, MoCA, Monash University, Melbourne, AUS.
Contribute: Talk – "What are chemical clocks?".

2019, Nov. 26 **Astrobignè**, *a short seminar in our Institute*, INAF - Osservatorio Astrofisico di Arcetri (FI), Italy.
Contribute: Talk – "Stellar dating using [C/N] as a chemical clock".

2019, Oct. 11 **SPOK**, *internal meeting of the star and star forming regions group*, INAF - Osservatorio Astrofisico di Arcetri (FI), Italy.
Contribute: Talk – "Calibrating a relationship between age and [C/N] abundance ratio with open clusters".

2018, May 31 **PhDday**[9], *day dedicated to the PhD students*, Polo Scientifico, Sesto Fiorentino (FI), Italy.
Contribute: Talk – "Stellar clusters as chemical evolution tracers in the Milky Way and nearby galaxies".

Languages

Italian	Mother tongue
English	Intermediate

Computer skills

Operating Systems	Windows, Linux, macOS
Programming	IDL and Python (very good), R (basic), C (really basic knowledge)
Astronomical software/package	DAOPHOT/ALLSTAR/ALLFRAME/DAOMATCH/DAOMASTER/MONTAGE2
	DAOSPEC, MOOG, DOOp, Fama, q2, IRAF
Astronomical tools	Topcat
Astronomical Viewers	SAOImageDS9, Aladin
Office	LaTeX, Microsoft Office, LibreOffice/OpenOffice, Adobe

Technical skills

Astrophysics
- Instrumental calibration, PSF photometry and photometric calibration of infrared data collected with seeing-limited and adaptive optics-assisted telescopes.
- Comparison between observations and theoretical models (isochrones, ZAHBs)
- Statistical analysis of big data.
- Spectral analysis using EWs measurements.
- Differential spectroscopy of solar twins.

Publications

Links *Publications in ADS*

Citation metrics – Total citations: 93, H-index: 6

Refereed ❉ Magrini, Smiljanic, Franciosini, **(Casali incl.)**, et al., 2021, "The Gaia-ESO survey: Lithium abundances in open cluster Red Clump stars", *Arxiv*.

❉ Romano, Magrini, Randich, **Casali**, et al., 2021, "The Gaia-ESO Survey: Galactic evolution of lithium from iDR6", *Arxiv*.

❉ Zhang, Lucatello, Bragaglia, **(Casali incl.)**, et al., 2021, "Stellar Population Astrophysics (SPA) with TNG Atmospheric parameters of members of 16 unstudied open clusters", *Arxiv*.

❉ Magrini, Lagarde, Charbonnel, **(Casali incl.)**, et al., 2021, "The Gaia-ESO survey: Mixing processes in low-mass stars traced by lithium abundance in cluster and field stars", *A&A, 651, A84*.

❉ Magrini, Vescovi, **Casali**, et al., 2021, "Magnetic-buoyancy-induced mixing in AGB Stars: a theoretical explanation of the non-universal [Y/Mg]-age relation", *A&A, 646, L2*.

❉ Brucalassi, Tsantaki, Magrini, **(Casali incl.)**, et al., 2021, "Determination of stellar parameters for Ariel targets: a comparison analysis between different spectroscopic methods.", *Exp Astron*.

❉ **Casali**, Magrini, Frasca et al., 2020, "Stellar population astrophysics (SPA) with the TNG. The old open clusters: Collinder 350, Gulliver 51, NGC 7044, Ruprecht 171", *A&A, 643, A12*.

❉ **Casali**, Spina, Magrini, et al., 2020 "The Gaia-ESO survey: the non-universality of the age-chemical-clocks-metallicity relations in the Galactic disc", *A&A, 639, A127*.

❉ Spina, Nordlander, Casey, **(Casali incl.)**, et al. 2020 "How Magnetic Activity Alters What We Learn from Stellar Spectra", *ApJ, 895, 52S*.

❉ D'Orazi, Oliva, Bragaglia, **Casali**, et al., 2020, "Stellar population astrophysics (SPA) with the TNG. Revisiting the metallicity of Praesepe (M 44)", *A&A, 633, A38*.

❉ Frasca, Alonso-Santiago, Catanzaro, **Casali**, et al., 2019, "Stellar population astrophysics (SPA) with the TNG. Characterization of the young open cluster ASCC 123", *A&A, 632, A16*.

❉ **Casali**, Magrini, Tognelli et al., 2019, "The Gaia-ESO survey: Calibrating a relationship between age and the [C/N] abundance ratio with open clusters", *A&A, 629, A62*.

❉ Magrini, Vincenzo, Randich, **Casali**, et al., 2018, "The Gaia-ESO Survey: The N/O abundance ratio in the Milky Way", *A&A, 618, A102*.

Non-refereed

❉ Tinetti, Eccleston, Haswell, **(Casali incl.)**, et al., 2021, "Ariel: Enabling planetary science across light-years", *Arxiv*.

❉ Prisinzano, Magrini, Damiani, **Casali** et al., 2018, "Investigating the population of Galactic star formation regions and star clusters within a Wide-Fast-Deep Coverage of the Galactic Plane", White Paper of LSST, *ArXiv*.

❉ Magrini, Randich, **Casali**, et al. , 2018, "Tracing the chemical evolution of nearby galaxies with star clusters", White Paper of MAVIS, *pdf*.

Highlights & Press Releases

Highlights — Casali et al. 2019, A&A, 629, A62 – Nature, Nature Physics, A&A

Press releases — Casali et al. 2019, A&A, 629, A62 – Media INAF, AstroPa INAF

Casali et al. 2020, A&A, 639, A127 – ESO Blog, Media INAF

Casali et al. 2020, A&A, 643, A12 – TNG news

Referring

2021 - Present — Referee for Astronomy & Astrophysics and Astrophysical Journal.

Proposals

❉ Magrini, L. , Randich, S., Cristallo, S., Strassmeier, K., **Casali, G.**, Pancino. E., 2018, "Exploiting PEPSI@LBT: Isotopic abundance ratios in star clusters"

❉ 0104.D-0617(A), Normal, P104, UT2-Kueyen, UVES, 50h, Co-I, *link*.

❉ 0105.D-0191(A), Normal, P105, UT2-Kueyen, UVES, 50h, Co-I, *link*.

❉ 0106.D-0537(A), Normal, P106, UT2-Kueyen, UVES, 50h, Co-I, *link*.

Other

❉ Organization of the S.P.O.K. (Stars and Planets Oriented Koffee), the meeting of the stars and star formation group at the *INAF - Osservatorio Astrofisico di Arcetri*, which takes place every Friday.

❉Member of *GAM - Gruppo Astrofili Massesi*, an astronomy outreach association in my home-town (Massa Carrara, Italy).

Referees

Prof. Andrea Miglio
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Dr. Laura Magrini
INAF - Osservatorio Astrofisico di Arcetri, Italy
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Dr. Lorenzo Spina
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