

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 - Italy
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- ✉ INAF - Osservatorio Astrofisico di Arcetri, Largo Enrico Fermi 5 - I-50125 Florence (FI) - Italy
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Professional Experience

- 2021 - Present **Postdoctoral Fellow**, *Department of Physics and Astronomy*, University of Bologna, (BO) Italy.
Project ERC - Asterochronometry: Galactic archeology 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
- 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
- 2010 - 2014 **Bachelor's Degree in Physics**, University of Pisa, (PI) Italy, with a final grade of 101/110.
Defence: February 28, 2014
- 2005 - 2010 **High School Diploma**, Liceo Scientifico G. Marconi, (MS) Italy, with a final grade of 100/100.

PhD thesis

- Title *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)
- 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

Master's thesis

Title *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)

Bachelor's thesis

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

PhD schools

- 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, 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 L^AT_EX, 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: 63, H-index: 5
- Refereed ✳ L. Magrini, N. Lagarde, C. Charbonnel, (**G. Casali incl.**), et al., 2021, "The Gaia-ESO survey: Mixing processes in low-mass stars traced by lithium abundance in cluster and field stars", *Arxiv*.

- * L. Magrini, D. Vescovi, **G. Casali**, S. Cristallo, 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.
- * A. Brucalassi, M. Tsantaki, L. Magrini, S. Sousa, C. Danielski, K. Biazzo, **G. Casali**, et al., 2021, "Determination of stellar parameters for Ariel targets: a comparison analysis between different spectroscopic methods.", *Exp Astron*.
- * **G. Casali**, 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.
- * **G. Casali**, L. Spina, L. 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.
- * L. Spina, T. Nordlander, A. R. Casey, M. Bedell, V. D'Orazi, J. Meléndez, A. I. Karakas, S. Desidera, M. Baratella, J. J. Yana Galarza, **G. Casali**, 2020 "How Magnetic Activity Alters What We Learn from Stellar Spectra", *ApJ*, 895, 52S.
- * V. D'Orazi, E. Oliva, A. Bragaglia, A. Frasca, N. Sanna, K. Biazzo, **G. Casali**, et al., 2020, "Stellar population astrophysics (SPA) with the TNG. Revisiting the metallicity of Praesepe (M 44)", *A&A*, 633, A38.
- * A. Frasca, J. Alonso-Santiago, G. Catanzaro, A. Bragaglia, E. Carretta, **G. Casali**, et al., 2019, "Stellar population astrophysics (SPA) with the TNG. Characterization of the young open cluster ASCC 123", *A&A*, 632, A16.
- * **G. Casali**, L. Magrini 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.
- * L. Magrini, F. Vincenzo, S. Randich, E. Pancino, **G. Casali**, et al., 2018, "The Gaia-ESO Survey: The N/O abundance ratio in the Milky Way", *A&A*, 618, A102.
- Non-refereed * G. Tinetti, P. Eccleston,, C. Haswell, (**G. Casali incl.**), et al., 2021, "Ariel: Enabling planetary science across light-years", *Arxiv*.
- * A. Brucalassi, K. Biazzo, **G. Casali**, L. Magrini, M. Tsantaki, M. Van der Swaelmen, M. Rainer, V. Adybekian, E. Delgado-Mena, S. Sousa, 2020, "Stellar parameters for Ariel", Report for the ARIEL WG of Stellar Characterization.
- * L. Prisinzano, L. Magrini, F. Damiani, G. Sacco, R. Bonito, L. Venuti, **G. 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*.
- * L. Magrini, S. Randich, **G. Casali**, E. Pancino, N. Sanna, 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](#)

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

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Dr. Lorenzo Spina

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