Giada Casali

Curriculum Vitae

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Date of birth: 1991, December 24
Citizenship: Italian

Affiliations

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

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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

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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 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

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	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	*ADS Library*
	Citation metrics – Total citations: 54, H-index: 5
Refereed	❊ 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*.

Submitted ❉ A. Brucalassi, M. Van der Swaelmen, **G. Casali**, et al., 2020, "Hunting for a planet around an accreted star in the Galactic halo. An extragalactic candidate planet", submitted to A&A.

❉ C. Danielski , A. Brucalassi, S. Benatti, T. Campante, E. Delgado-Mena, M. Rainer, G. G. Sacco, A. Vardan, K. Biazzo, D. Bossini, G. Bruno, **G. Casali** et al., 2020, "The homogeneous characterisation of Ariel host stars.", submitted to Experimental Astronomy.

Non-refereed ❉ 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

Dr. Laura Magrini
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Dr. Angela Bragaglia
INAF - Osservatorio di Astrofisica e Scienza dello spazio di Bologna, Italy
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Dr. Lorenzo Spina
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Dr. Katia Cunha
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