Giada Pastorelli – Curriculum Vitae

Personal Data

Place and Date of Birth:	Siena, Italy — May 21, 1990
Address:	Space Telescope Science Institute
	3700 San Martin Drive Baltimore, MD 21218
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Education

Oct 2015 – Sep 2018	**PhD in Astronomy** *cum laude*, University of Padova, Italy Dissertation defense 6 March 2019
Thesis	Calibrating the TP-AGB phase through resolved stellar populations in nearby galaxies *PhD funded by the ERC Consolidaor Grant, project* starkey *(PI Prof. P. Marigo)*
Advisor	Prof. Paola Marigo
Co-Advisor	Dr. Léo Girardi
External referees	Prof. Achim Weiss, Prof. Daniel Weisz
Oct 2013 – Sep 2015	**Master Degree in Astronomy**, University of Padova, Italy 110/110 *summa cum laude*
Thesis	Calibrating the TP-AGB phase through resolved stellar populations in the Small Magellanic Cloud
Advisor	Prof. Paola Marigo
Co-Advisor	Dr. Léo Girardi
Oct 2011 – Mar 2012	**LLP/Erasmus Programme**, Potsdam University, Germany
Oct 2009 – Oct 2013	**Bachelor Degree in Astronomy**, University of Padova, Italy
Thesis	Thermohaline mixing in low-mass stars
Advisor	Prof. Paola Marigo

Research Experience

Nov 2019 – Present	**Postdoctoral researcher**, STScI, Baltimore MD, USA As a member of the Interstellar Medium* Group @ STScI, my research focuses on models and interpretation of stellar populations in nearby galaxies, with emphasis on advanced evolutionary phases (AGB and Helium-burning stars)
Oct 2018 – Sep 2019	**Postdoctoral researcher**, University of Padova, Italy Member of the starkey team, working on stellar population synthesis simulations and calibration of TP-AGB models in nearby galaxies

Research Interests

- Stellar structure and evolution; modelling of the asymptotic giant branch phase
- Observational and theoretical aspects of evolved stars in galaxies of the Local Group
- Simulations of synthetic stellar populations as a tool for interpreting data of present and future observing facilities

Mentoring Activities

Mar 2018 **Co-advisor** of Master's student Maria Moressa, Thesis title: "Thermally Pulsing Asymptotic Giant Branch Stars in the Cluster NGC 419" – Advisor: Prof. Paola Marigo – University of Padova, Italy

Sep 2018 **Co-advisor** of Master's student Giacomo Cordoni, Thesis title: "Introduction to research activities" – Advisor: Prof. Paola Marigo – University of Padova, Italy

Mar 2020 **Co-advisor** of Master's student Róisín O'Rourke Brogan, project "Testing the multi-epoch luminosity function of asymptotic giant branch stars in the Small Magellanic Cloud with VISTA" – Advisor: Prof. Maria-Rosa Cioni – Leibniz-Institut für Astrophysik Potsdam (AIP), Potsdam, Germany

Academic and outreach activities

Jan 2020 Outreach Talk – Astronomy on Tap, Baltimore – "Twinkle twinkle giant star"

Apr 2018 Co-organizer of the annual STARKEY meeting – Dep. of Physics and Astronomy – UniPd

Sep 2017 Collaborator to the "European Researchers' Night" – Padova, INAF OAPd & UniPd

2015–2016 PhD Student Representative – Dep. of Physics and Astronomy – UniPd

2015–2016 Organizer of the weekly Journal Club meetings – Dep. of Physics and Astronomy – UniPd

Referee/Reviewer: AAS Journals, MNRAS

Personal Skills

- **Programming languages and astronomical software**
  - Working knowledge: PYTHON programming, bash scripting, version control systems (GITLAB, GITHUB), Virtual Observatory tools (TOPCAT, STILTS)
  - Basic knowledge: PERL and C programming, ADQL, HTML, CSS
- **Languages**
  - Italian: Mothertongue
  - English: Fluent
  - German: Basic Knowledge

Specialized Training

Mar 2020	Baltimore, USA	**JWST Proposal Writing Workshop** – University of Maryland
Feb 2018	Paris, France	**IYAS School** – Scientific Exploitation of the Gaia Data
Sep 2016	Heidelberg, Germany	**IMPRS Summer School** – Astrostatistics & Data Mining
Oct 2015	Erice, Italy	**PhD School F. Lucchin** – Science and Technology with E-ELT

Memberships

- **American Astronomical Society** – Sep 2019 – Present
- **The Interstellar Medium* Group @ STScI** – Nov 2019 - Present
- **LSST Stars, Milky Way & Local Volume Science Collaboration** – PI: Dr. L. Girardi – 2017-2020
- **VMC Survey Team** – PI: Prof. M-R. L. Cioni – Jun 2016 - Present
- **STARKEY team** – ERC Consolidator Grant – PI: Prof. P. Marigo – 2015 - Present

Successful Observing Proposals

- **Co-I** – Hubble Space Telescope/WFC3+ACS, 51 orbits, Cycle 28 – *Solving the metallicity dependence of evolved star evolution and completing HST's near-IR legacy in the Local Volume* – PI: Dr. M. L. Boyer
- **Co-I** – Hubble Space Telescope/WFC3+ACS, 33 orbits, Cycle 27 – *Uncovering the Cause of the Shift in Carbon Star Behaviour at High Metallicity* – PI: Dr. M. L. Boyer
- **Co-I** – ESO – VIRCAM/VISTA, 154 hours, P104A – *Deep VISTA observations of the centres of the Magellanic Clouds* – PI: Prof. M-R. L. Cioni

Conferences and Meetings

Contributed Talks

Jan 2020	Honolulu, Hawai'i, USA	**235th meeting of the AAS** – Dissertation talk *"Calibrating the thermally-pulsing asymptotic giant branch phase through resolved stellar populations in nearby galaxies"*
Aug 2018	Vienna, Austria	**IAU General Assembly** – Symposium 343 – Why Galaxies Care about AGB stars: a Continuing Challenge through Cosmic Time *"Calibrating TP-AGB stellar models and chemical yields through resolved stellar populations in the SMC"*
Jul 2018	Ringberg, Germany	**Meeting M31 and M33** *"Calibration of TP-AGB models in the SMC"*
Jun 2018	Lyon, France	**Workshop LSST@Europe3** *"Simulations of the LSST stellar content: Milky Way and Magellanic Clouds"*
Sep 2017	Peking, China	**Stellar Population and the Distance Scale** – A Conference in Honour of Jeremy Mould *"Calibrating the TP-AGB phase through resolved stellar populations in the Magellanic Clouds"*
Aug 2017	Tucson, USA	**LSST Project and Community Workshop** *"TRILEGAL – LSST simulations"*
Jun 2017	Garching, Germany	**9th VMC Meeting** *"Calibrating the TP-AGB Phase through Resolved Stellar Populations in the Magellanic Clouds"*
Mar 2017	Rome, Italy	**AGB-Supernovae Mass Transition Conference** *"Calibrating the TP-AGB Phase through Resolved Stellar Populations in the Small Magellanic Cloud"*
Jun 2016	Keele, UK	**8th VMC Meeting** *"Calibrating the TP-AGB phase through resolved stellar populations in the Small Magellanic Cloud"*

Posters

April 2019	Baltimore, MD, USA	**STScI 2019 Spring Symposium** – The Deaths and Afterlives of Stars *"Constraining the TP-AGB phase with resolved stellar populations in the Small Magellanic Cloud"*
Jun 2016	Uppsala, Sweden	**19th Cambridge Workshop** – Cool Stars, Stellar Systems, and the Sun *"Calibrating the TP-AGB phase through resolved stellar populations in the Small Magellanic Cloud"*

Publications

First-Authored Refereed

[2] 2020, MNRAS 498, 3283 — Constraining the thermally-pulsing asymptotic giant branch phase with resolved stellar populations in the Large Magellanic Cloud
Pastorelli G., *Marigo P., Girardi L., Aringer B., Chen Y., Rubele S., Trabucchi M., Bladh S., Boyer M. L., Bressan A., Dalcanton J. J., Groenewegen M. A. T., Lebzelter T., Mowlavi N., Chubb K. L., Cioni M-R. L., de Grijs R., Ivanov V. D., Nanni A., van Loon J. Th., and Zaggia S.*

[1] 2019, MNRAS 485, 5666 — Constraining the thermally-pulsing asymptotic giant branch phase with resolved stellar populations in the Small Magellanic Cloud
Pastorelli G., *Marigo P., Girardi L., Chen Y., Rubele S., Trabucchi M., Aringer B., Bladh S., Bressan A., Montalban J., Boyer M. L., Dalcanton J. J., Eriksson K., Groenewegen M. A. T., Höfner S., Lebzelter T., Nanni A., Rosenfield P., Wood P. R. and Cioni M-R. L.*

Co-Authored Refereed

[11] 2020, Nat. Astronomy, s41550-020-1132-1 — Carbon star formation as seen through the non-monotonic initial-final mass relation
Marigo, P., Cummings, J. D.., Curtis, J. L., Kalirai, J., Chen, Y., Tremblay, P-E., Ramirez-Ruiz, E., Bergeron, P., Bladh, S., Bressan, A., Girardi, L., **Pastorelli G.**, *Trabucchi, M., Cheng, S., Aringer, B., and Dal Tio, P.*

[10] 2020, ApJ, 901, 19 — PHAT XX. AGB stars and other cool giants in M31 star clusters
Girardi L., Boyer M. L., Johnson L. C., Dalcanton J. D., Rosenfield P., Seth A. C., Skillman E. D., Weisz D. R., WilliamsB. F., Bhattacharya A., Bressan A., Caldwell N., Chen Y., Dolphin A. E., Fouesneau M., Goldman S., Guhathakurta P., Marigo P., Mukherjee S., **Pastorelli G.,** *Quirk A., Soraisam M., Trabucchi M.*

[9] 2019, A&A, 613, 24 — Period-luminosity diagram of long period variables in the Magellanic Clouds. New aspects revealed from Gaia Data Release 2
Lebzelter, T., Trabucchi, M., Mowlavi, N., Wood, P. R., Marigo, P., **Pastorelli, G.,** *Lecoeur-Taïbi, I.*

[8] 2019, A&A, 632, 105 — YBC: a stellar bolometric corrections database with variable extinction coefficients. Application to PARSEC isochrones
Chen, Y., Girardi, L., Fu, X., Bressan, A., Aringer, B., Dal Tio, P., **Pastorelli, G.,** *Marigo, P., Costa, G., and Zhang, X.*

[7] 2019, MNRAS 482, 929 — Modelling long-period variables - I. A new grid of O-rich and C-rich pulsation models
Trabucchi, M., Wood, P. R., Montalbán, J., Marigo, P., **Pastorelli, G.**, *Girardi, L.*

[6] 2018, A&A 616, L13 — A New method to identify subclasses among AGB stars using Gaia and 2MASS photometry
Lebzelter T., Mowlavi N., Marigo P., **Pastorelli G.**, *Trabucchi M., Wood P. R. and Lecoeur-Taïbi I.*

[5] 2018, MNRAS 478, 5017 The VMC survey - XXXI: The spatially resolved star formation history of the main body of the Small Magellanic Cloud
Rubele S., **Pastorelli G.**, *Girardi L, Cioni M.-R. L, Zaggia S., Marigo P., Bekki, K., Bressan, A., Clementini G., de Grijs R., Emerson J., Groenewegen M. A. T., Ivanov V. D., Muraveva T., Nanni A., Oliveira J. M., Ripepi V., Sun N.-C. and van Loon J. Th.*

[4] 2018, MNRAS 473, 5492 Estimating the dust production rate of carbon stars in the Small Magellanic Cloud
Nanni A., Marigo P., Girardi L., Rubele S., Bressan A., Groenewegen M., **Pastorelli G.** *and Aringer B.*

[3] 2017, ApJ 847, 139 A new interpretation of the period-luminosity sequences of long-period variables
Trabucchi, M., Wood P. R., Montalbán J., Marigo P., **Pastorelli G.** *and Girardi L.*

[2] 2017, ApJ 835, 77 A new generation of `PARSEC-COLIBRI` stellar isochrones including the TP-AGB phase
Marigo P., Girardi L., Bressan A., Rosenfield P., Aringer B., Chen Y., Dussin M., Nanni A., **Pastorelli G.**, *Rodrigues, T. S., Trabucchi, M., Bladh, S., Dalcanton, J., Groenewegen, M. A. T., Montalbán, J. and Wood, P. R.*

[1] 2016, MNRAS 462, 1215 Constraining dust properties in Circumstellar Envelopes of C-stars in the Small Magellanic Cloud: optical constants and grain size of Carbon dust
Nanni A., Marigo P., Groenewegen M. A. T. , Aringer B., Girardi L., **Pastorelli G.**, *Bressan A. and Bladh S.*

Non-refereed – Proceedings

[11] 2019, IAUS 343, 73-76 AGB stars in Gaia DR2
Lebzelter, T., Mowlavi, N., Marigo, P., Lecoeur-Taibi, I., Trabucchi, M., **Pastorelli, G.,** *Wood, P., Gaia Collaboration*

[10] 2019, IAUS 343, 269-272 Calibrating TP-AGB stellar models and chemical yields through resolved stellar populations in the Small Magellanic Cloud
Pastorelli, G., *Marigo, P., Girardi, L., and the Starkey Project Team*

[9] 2019, IAUS 343, 301-304 Characterisation of long-period variables in the Magellanic Clouds
Trabucchi, M., Wood, P. R., Montalbán, J., Marigo, P., **Pastorelli, G.,** *Girardi, L.*

[8] 2020, IAUGA A30, 405-405 Constraining dust properties in circumstellar envelopes of C-stars in the Magellanic Clouds: Optical constants and grain size of carbon dust
Nanni, A., Marigo, P., Groenewegen, M. A. T., Aringer, B., Rubele, S., Bressan, A., Girardi, L., **Pastorelli, G.,** *and Bladh, S.*

[7] 2018, ArXiv 1812.03139 Mapping the periphery and variability of the Magellanic Clouds –LSST White Paper
Olsen K., Szkody P., Cioni M-R. L., Di Criscienzo M., Musella I., Ripepi V., Borsa F., Marconi M., Girardi L., **Pastorelli G.**, *Trabucchi M., Ventura P. and Moniez M.*

[6] 2018, ASP 154, 111 Long-Period Variables in the Large Magellanic Cloud
Trabucchi, M., Wood, P. R., Montalbán, J., Marigo, P., **Pastorelli, G.,** *Girardi, L.*

[5] 2018, ASP 514, 57 — Modelling TP-AGB Stars in M31 with PHAT Data
Chen, Y., Marigo, P., Girardi, L., **Pastorelli, G.**, *and Williams, B. F., Rosenfield, P., Dalcanton, J. J., Aringer, B., Trabucchi, M.*

[4] 2017, EPJWC 152, 06008 — Non-radial modes in AGB stars
Montalbán, J., Trabucchi, M., Marigo, P., Wood, P. R. and **Pastorelli, G.**

[3] 2017, MmSAIt 88, 262 — Calibrating the TP-AGB phase through resolved stellar populations in the Small Magellanic Cloud
Pastorelli G., *Marigo P., Girardi L., Rubele S., Nanni A., Chen Y., Bressan A., Aringer B., Trabucchi M., Montalban J., Bladh S. and Cioni M.-R. L.*

[2] 2017, MmSAIt 88, 393 — Estimating dust production rate of carbon-rich stars in the Small Magellanic Cloud
Nanni, A., Marigo, P., Groenewegen, M. A. T., Aringer, B., **Pastorelli, G.**, *Rubele, S., Girardi, L., Bressan, A. and Bladh, S.*

[1] 2016, CS19 — Constraining dust properties in circumstellar envelopes of C-Stars in the Small Magellanic Cloud: optical constants and grain size of carbon dust
Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun
Nanni, A., Marigo, P., Groenewegen, M. A. T., Aringer, B., Girardi, L., **Pastorelli, G.,** *Bressan, A. and Bladh, S.*

References

- **Dr. Martha L. Boyer** (Current Postdoc Supervisor)
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- **Prof. Paola Marigo** (PhD and Postdoc Advisor)
  Department of Physics and Astronomy G. Galilei
  University of Padova
  Vicolo dell'Osservatorio 3 I-35122 Padova, Italy
  E-mail: paola.marigo@unipd.it
- **Dr. Léo Girardi** (PhD and Postdoc Co-Advisor)
  Osservatorio Astronomico di Padova, INAF
  Vicolo dell'Osservatorio 5, I-35122 Padova, Italy
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