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Born: 27 April, 1994 — Treviso, Italy
Nationality: Italian

Current position

Postdoctoral fellow, Alma Mater Studiorum - Università di Bologna

Areas of specialisation

Astrophysics: galactic archaeology, interstellar dust evolution

Employment

2024-now Postdoctoral fellow, Alma Mater Studiorum - Università di Bologna

2022-24 Postdoctoral fellow, Ghent University

2018-22 PhD Student, Università degli Studi di Trieste

Education

2022 **PHD in Physics**, Università degli Studi di Trieste.
Final thesis title: “Cosmic chemical and dust evolution” (Supervisor: Prof. F. Matteucci)
Grade: excellent.

2018 **MSc in Physics-Astrophysics and Cosmology curriculum**, Università degli

Studi di Trieste.

Final thesis title: “Clues on GRB origin from chemical evolution models” (Supervisor: Prof. F. Matteucci)

Grade: 110/110 cum laude.

2016 **BSc in Physics**, Università degli Studi di Padova.

Final thesis title: “Dynamics of eccentric accretion disks and correlation with ‘superhump’ phenomena” (supervisor: Prof. F. Marzari)

Grade: 106/110.

Honours & awards

2020 Borsa di studio centro studi “Manlio Cecovini” (scholarship from study center “Manlio Cecovini”) for best master thesis

2020 Borsa di Studio “Ivano Pastro” per giovani laureati (scholarship for young graduates “Ivano Pastro”)

Teaching

COURSES AS TEACHING ASSISTANT

2021 Stellar astrophysics (2 lectures of 2 hours), MSc in Physics, a.y. 2021-2022, University of Trieste.

2021 Stellar and galactic Evolution (1 hour lecture), MSc in Physics, a.y. 2020-2021, University of Trieste.

2020 Stellar astrophysics (1 hour lecture), MSc in Physics, a.y. 2020-2021, University of Trieste.

2019 Introduction to astrophysics (2 hours lecture), BSc in Physics, a.y. 2019-2020, University of Trieste.

2019 Stellar and galactic evolution (2 hours lecture), MSc in Physics, a.y. 2018-2019, University of Trieste.

EXAMS/THESES COMMISSIONS

2023 Thesis reviewer, MSc in Space Studies, KU Leuven.

2018-22 Exams of Introduction to astrophysics, theoretical astrophysics, stellar and galactic evolution, University of Trieste.

CO-SUPERVISOR EXPERIENCE

2020-now Giulio Simoni (BSc in Physics, University of Trieste, 2020), Andrea Milan (BSc in Physics, University of Trieste, 2022).

Colloquia, talks & schools

COLLOQUIA

- 2022 "Galactic archaeology: a Chemical evolution perspective", IFPU friday meeting, IFPU, Trieste (ITA).
- 2022 "Explaining the α -bimodality in Chemical evolution models", Mercoledì degli Ammassi meeting, Università degli Studi di Bologna, Bologna (ITA).

INVITED TALKS

- 2023 "SNe et al. in galactic chemical evolution", SNeX conference, Israel Institute of Technology, Haifa (ISR).

CONTRIBUTED TALKS

- 2023 "Probing our Solar Neighbourhood: Stellar Yields, Formation Scenarios, Stellar Radial Migration", Stars (across the Universe), INAF-OACN, Napoli (ITA).
- 2023 "Production, growth or destruction? Modelling the dust cycle at kpc scale in local galaxies", EAS 2023 meeting, European Astronomical Society, Krakow (POL).
- 2023 "Unveiling baryonic structure and evolution of local star forming discs", 78th NAC, Royal Netherlands Astronomical Society, Leeuwarden (NED).
- 2023 "G(g)galactic archaeology: from the Galactic disc to local spirals". Stellar ages and Galactic archaeology, Università degli Studi di Trieste with Sexten Center for Astrophysics, Sexten (ITA).
- 2022 "Tracing dust evolution in M74 galaxy". Poster Symposium for Early-career Researchers, ASTRO 3D with American Astronomical Society (online).
- 2022 "The effects of Type Ia SNe on MW chemical evolution". Poster Symposium for Early-career Researchers, ASTRO 3D with American Astronomical Society (online).
- 2022 "Chemical evolution of the MW: a multi-zone model for the Galactic disc". Abundance gradients to trace galaxy formation and evolution, Università degli Studi di Trieste with Sexten Center for Astrophysics, Sexten (ITA).
- 2020 "The influence of a top-heavy integrated galactic IMF on the chemical evolution of high-redshift starbursts". Chemical Evolution of Galaxies: the next 25 years, Università degli Studi di Trieste with Sexten Center for Astrophysics, Sexten (ITA).
- 2019 "GRB hosts identification through chemical abundances". Cosmic Explosions 2019, CNRS with CEA Saclay, Institut d'Etudes Scientifiques de Cargèse (FRA).
- 2019 "GRB hosts identification through chemical abundances". Galactic Archaeology in the Gaia Era, Università degli Studi di Trieste with Sexten Center for Astrophysics, Sexten (ITA).

SCHOOLS ATTENDED

- 2022

- Officina di Narrazione della Scienza (ONSCI), University of Bologna, Bologna (ITA), 7-14 September 2022 (online course).
- 2022 2022 Astrostatistics School Crete, University of Crete, Heraklion (GRE), 11-15 July 2022.
- 2022 IAA-CSIC Advanced School on Galaxy Evolution, IAA, Granada (SPA), 23-27 May 2022.
- 2021 International Summer School on the Interstellar Medium of Galaxies , CNRS, Banyuls Sur Mer (FRA), 12-23 July 2021 (online course).
- 2021 Introduction to Parallel Computing with MPI and OpenMP, CINECA, Bologna (ITA), 3-5 March 2021 (online course).
- 2020 Gaia: Great Advances In Astrophysics, University of Bologna, Bologna (ITA) (online course).
- 2019 Cosmic Explosions 2019, CNRS with CEA Saclay, Institut d'Etudes Scientifiques de Cargèse (FRA).
- 2017 Europlanet Summer School 2017, Europlanet 2020 (RI) and ITPA-Vilnius University, Moletai Astronomical Observatory (LIT).
- 2016 40th Alpbach Summer School, FFG with ESA, Austrospace, ISSI, Alpbach (AUT).

Referee

2021-now Referee for some of the main astrophysical journals (ApJ, AJ)

Accepted proposals

- 2023 CoI of cycle 2 GO JWST proposal: "Unveiling the interplay between the circumgalactic and interstellar media in a complex protocluster environment at $z=4.5$ ", proposal ID 4265, allocated time 17h.
- 2023 CoI of CFHT/SITELLE proposal: "Andromeda's Dust And Gas - the Ionised Observations, allocate (ADAGIO)", proposal ID CFHT2023BC018, allocated time 20.2h.
- 2021 PI of computational proposal at CINECA (ITA): "Constraining the chemical evolution through the Milky Way", 100 k CPU h.

IT knowledge

OPERATING SYSTEMS

Linux/Unix (very good knowledge), Mac OS (very good), Windows.

PROGRAMMING LANGUAGES

Python (very good), Fortran 77 and 90 (very good), C and C++, sh, Arduino (basics).

Basic knowledge of MPI and OpenMP standards for parallel computing.

ASTRONOMICAL SOFTWARES

CASA, Aladin, DS9, GAIA, Topcat, IRAF, Muniwin, Splat VO.

Outreach, external lectures and press releases

2021 Astronomy lesson for primary school children: "Il Sole e le altre stelle", I.C. C. Casteller, Paese (ITA), 19 March 2021 (online event).

2019 Training course for teachers of secondary schools: "Strutture spaziali in fisica: dal macro al micro-cosmo", Polo Linceo di Trieste, Trieste, 5 December 2019.

Language knowledge

Italian (mother tongue), English (fluent), German (basic)

Publications

ORCID ID: orcid.org/0000-0002-3574-9578

SUMMARY

TOTAL PUBLICATIONS: 20

TOTAL PUBLICATIONS AS 1st AUTHOR: 9

REFEREED PUBLICATIONS: 18

REFEREED PUBLICATIONS AS 1st AUTHOR: 7

JOURNAL ARTICLES

- 2024 **Palla, M.**; De Looze, I. ; Relaño, M. et al.; [Metal and dust evolution in ALMA REBELS galaxies: insights for future JWST observations](#), 2024, MNRAS, 528, 2407
- 2024 Aravena, M.; Heintz, K.; Dessauges-Zavadsky, M.; ... **Palla, M.**, [The ALMA Reionization Era Bright Emission Line Survey: The molecular gas content of galaxies at z 7](#), 2024, A&A, 682, A24
- 2024 Algera, H.; Inami, H.; Sommovigo, L.; ... **Palla, M.** et al., ["Cold Dust and Low \[OIII\]/\[CII\] Ratios: an Evolved Star-forming Population at Redshift 7"](#), 2024, MNRAS, 527, 6867.
- 2024 Bowler, R. A. A. ; Inami, H.; Sommovigo, L.; ... **Palla, M.** et al., [The ALMA REBELS survey: obscured star formation in massive Lyman-break galaxies at z=4-8 revealed by the IRX- \$\beta\$ and \$M_*\$ relations](#), 2024, MNRAS, 527, 5808
- 2023 da Silva, R.; D'Orazi, V.; **Palla, M.** et al. ["Oxygen, sulfur, and iron radial abundance gradients of classical Cepheids across the Galactic thin disk"](#), A&A, 678, A195.
- 2023 Molero, M.; Magrini, L.; Matteucci, F.; Romano, D.; **Palla, M.**; Cescutti, G.; Viscasillas Vázquez, C.; Spitoni, E., ["Origin of neutron-capture elements with the Gaia-ESO survey: the evolution of s- and r-process elements across the Milky Way"](#), 2023, MNRAS, 523, 2974.
- 2023 Santos-Peral, P.; **Palla, M.**; Recio-Blanco, A.; Kordopatis, G.; Fernandez-Alvar, E., ["High-precision Mg abundances in the metal-rich Galactic disc: chemodynamical relations and comparison with chemical evolution models"](#), 2023, Highlights of Spanish Astrophysics XI, 197.
- 2023 Calura, F.; **Palla, M.**; Morselli, L.; Spitoni, E.; Casasola, V.; Verma, K.; Enia, A.; Meneghetti, M.; Bianchi, S.; Pozzi, F.; Gruppioni, C., ["A Bayesian chemical evolution model of the DustPedia galaxy M74"](#), 2023, MNRAS, 523, 2351.
- 2022 **Palla, M.**; Spitoni, E.; Andersson, E., ["Models in shaping of Milky Way gradients"](#), 2022, MmSAI, 93, 9.
- 2022 **Palla, M.**; Santos-Peral, P.; Recio-Blanco, A.; Matteucci, F., ["\[Mg/Fe\] ratios in the solar neighbourhood: stellar yields and chemical evolution scenarios"](#), 2022, A&A, 663, A125.

- 2021 **Palla, M.**, "The effects of different Type Ia SN yields on Milky Way chemical evolution", 2021, MNRAS, 503, 3216.
- 2021 Spitoni, E.; Verma, K.; Silva Aguirre, V.; Vincenzo, F.; Matteucci, F.; Vaičekauskaitė, B.; **Palla, M.**; Grisoni, V.; Calura, F., "APOGEE DR16: a multi-zone chemical evolution model for the Galactic disc based on MCMC methods", 2021, A&A, 647, A73.
- 2020 **Palla, M.**; Matteucci, F.; Spitoni, E.; Vincenzo, F.; Grisoni, V., "Chemical evolution of the Milky Way: constraints on the formation of the thick and thin discs ", 2020, MNRAS, 498, 1710.
- 2020 **Palla, M.**; Calura, F.; Matteucci, F.; Fan, X. L.; Vincenzo, F.; Lacchin, E., "The influence of a top-heavy integrated galactic IMF and dust on the chemical evolution of high-redshift starbursts", 2020, MNRAS, 494, 2355.
- 2020 Lacchin, E.; Matteucci, F.; Vincenzo, F.; **Palla, M.**, "Chemical evolution of ultra-faint dwarf galaxies: testing the IGIMF", 2020, MNRAS, 495, 3276.
- 2020 Gjergo, E.; **Palla, M.**; Matteucci, F.; Lacchin, E.; Biviano, A.; Fan, X., "On the origin of dust in galaxy clusters at low-to-intermediate redshift", 2020, MNRAS, 493, 2782.
- 2020 **Palla, M.**; Matteucci, F.; Calura, F.; Longo, F., "Galactic Archaeology at High Redshift: Inferring the Nature of GRB Host Galaxies from Abundances", 2020, ApJ, 889, 4.
- 2018 Vladilo, G.; Gioannini, L.; Matteucci, F.; **Palla, M.**, "Evolution of the Dust Composition in Damped Ly α Systems", 2018, ApJ, 868, 13.

THESES

- 2018 **Palla, M.** , "Clues on GRB origin from chemical evolution models", 2018, MSc Thesis.
- 2016 **Palla, M.** , "Dynamics of eccentric accretion disks and correlation with ‘superhump’ phenomena", 2016, BSc Thesis (in Italian)