

Curriculum Vitae – Alessandra Mastrobuono-Battisti

PERSONAL INFORMATION

Family name, First name: Mastrobuono Battisti, Alessandra

Researcher unique identifier(s): ORCID: 0000-0002-2386-9142; SCOPUS ID: 35174814200

Nationality: Italian; **Family status:** Married, 2 children

Web site: <http://alessandramb.github.io/>

CURRENT POSITION

2024 – **Tenure Track Assistant Professor (RTDb)**

Physics and Astronomy Department “Galileo Galilei”, University of Padova, Italy

PREVIOUS POSITIONS

2021 – 2023 **Marie Curie Fellow. Project: THESYS.** GEPI, Observatoire de Paris, France

Maternity leave (Nov 2022 – March 2023)

2020 – 2021 **Researcher**, Lund Observatory, Lund, Sweden

Maternity leave (Feb 2020 – Oct 2020)

2015 – 2019 **Independent Research Fellow (MPIA prize fellowship)**, Galaxies and Cosmology Department, Max Planck Institute for Astronomy, Heidelberg, Germany

2012 – 2015 **Postdoctoral Fellow (Lady Davis Fellowship)**,

Physics Department, Technion-Israel Institute of Technology, Haifa, Israel

EDUCATION

2012 **PhD in Astronomy.** Grade: Excellent

Department of Physics and Astrophysics, Sapienza University of Rome, Italy

Supervisor: Prof. Roberto Capuzzo-Dolcetta

2008 **Master's Degree in Astronomy and Astrophysics.** Grade: 110/110 summa cum laude

Department of Physics and Astrophysics, Sapienza University of Rome, Italy

FELLOWSHIPS AND GRANTS

2024 – Ramon y Cajal Fellowship, the most competitive Spanish national tenure track fellowship (350,000EUR, declined, ranked 13th over more than 350 applicants)

2021–2023 Horizon 2020 MSCA Individual Fellowship (200,000EUR, THESYS, grant agreement No 895174). Host institution: CNRS and GEPI, Observatoire de Paris, France.

2015 – 2019 MPIA Prize Fellowship (250,000EUR). Host institution: Galaxy and Cosmology Department, Max Planck Institute for Astronomy, Heidelberg, Germany.

2012 – 2014 Lady Davis Fellowship (18,000 USD). Host institution: Technion, Israel.

2012 HPC-Europa2 grant (3,000 EUR, 50,000 CPU hours and unlimited GPU hours for 3 months). Host institution: GEPI – Observatoire de Paris.

2008 – 2011 PhD Scholarship (75,000EUR). MIUR, Host institution: Sapienza Univ. of Rome.

PRIZES AND AWARDS

- 1) **“Imagine”** prize for the outstanding scientific career, awarded by “Associazione Immagine”, Latina, IT. Annual award for outstanding scientists (10/12/16).
- 2) **“Lievito 2016”** prize, awarded by “Associazione Lievito”, Latina, IT. Annual award for outstanding scientists (25/04/16).
- 3) **“Latina va in Scena”** prize for the outstanding scientific achievements. Award from Latina County in Italy (28/06/15).
- 4) **Formal recognition** (Italian: “Menzione d’Onore”) from the city of Pontinia (25/05/15).

SUCCESSFUL COMPUTING AND OBSERVING TIME PROPOSALS

- 2025 **Co-I** for **2 JWST** proposals and **4 HST** proposals (Pis: A. Milone, M.V. Legnardi, G. Cordoni, F. Muratore).
- 2021 **PI** of a SNIC computing proposal, granted resources 120,000 GPU/CPU hours on Swedish supercomputers. Project: "The origin of the Galactic nucleus".
- 2020 **Co-I** for the **Hubble Space Telescope proposal Cycle 28** observing proposal "Digging into the mystery of the Galactic globular clusters M22 and NGC1851" (PI: Annalisa Calamida, STScI).
- 2017 **Co-PI** for a CINECA proposal, granted resources: 200000CPU/GPU hours (for 9 months). Project: "Formation of nuclear clusters through mergers of a realistic population of globular clusters".
- 2014 **Co-PI** for a LinkSCEEM/Cy-Tera proposal, granted resources: 12000 GPU hours available for 12 months. Project: "Formation and evolution of dense stellar clusters".
- 2014 **Co-I** for a GEMINI proposal, "The Milky Way nuclear star cluster as a benchmark for the structure and build-up of galactic nuclei" (PI: Anja Feldmeier-Krause, ESO).
- 2011 **Co-I** for a CFHT proposal, "The extended tidal tails of Palomar 14" (PI: Prof. D. Valls-Gabaud, Observatoire de Paris).

PUBLICATION SUMMARY: 10,600 citations (ADS, as of 08/2025)

- **h-index: 35**;
- **80** publications in peer-reviewed, high impact-factor journals:
- **12** as the **first author** including: 1 **Nature** paper as the first author; **20** as the **second or third author (including 9 as the supervisor of PhD students)**.
- 2 white papers and 14 conference proceedings (10 refereed, 8 as the first author).

PUBLIC LECTURES, TALKS AND SEMINARS SUMMARY

- 10 invited talks at conferences (since 2014);
- 13 public outreach seminars/lectures (including a **TED^x** talk, since 2015).
- 22 invited colloquia/seminars at international institutes (since 2012),
- More than 50 press interviews, including some on gender equality in STEM.
- 32 contributed talks at conferences (since 2010).

INVITED CONFERENCE TALKS (10 talks)

- 2026 **Invited Talk.** "Traversing the Galactic Center in Space and Time", Brno, Czech, 18-22/09. **Title:** "The Formation and Dynamical Evolution of the Galactic Nuclear Star Cluster".
- 2023 **Invited Talk.** "A multi-wavelength view on globular clusters near and far: from JWST to the ELT", Sexten, Italy, 3-7/07. **Title:** "Modelling the origin of multiple populations in globular clusters."
- 2023 **Invited Talk.** "Phases Of Galactic Evolution As Traced By Stellar Populations And Star Clusters", Sexten, Italy, 26-30/06. **Title:** "Modelling the origin of multiple populations in globular clusters."
- 2022 **Invited review talk.** "The Puzzles of the Galactic Centre", Heidelberg, Germany, 5-7/09. **Title:** "The Galactic nuclear star cluster and supermassive black hole formation and co-evolution: where do we stand?". During the same conference, **I led a discussion section** as an expert on nuclear star cluster formation and evolution.
- 2019 **Invited talk.** "Uncovering the Physics of Formation of Globular Clusters and their Host Galaxies", KITP, Santa Barbara, US, 11-14/05, postponed due to the Covid19 outbreak. **Title:** "The dynamics of merging globular clusters".
- 2018 **Invited talk.** "Multiple populations in Globular clusters", Sexten, Italy, 09-13/07. **Title:** "On the merger origin of metallicity spreads in globular clusters".
- 2018 **Invited talk.** MPA Galaxy and Cosmology Retreat 2018, Lobbach, Germany, 14-16/05. **Title:** "The chemo-dynamical evolution of the Solar System".
- 2017 **Invited review talk.** "The amazing life of stars", Cefalù, Italy, 04-08/09. **Title:** "The formation and evolution of Nuclear star clusters".
- 2014 **Invited review talk.** "Growth and evolution of the Milky Way's nuclear star cluster and its central black hole", Alajar, Spain, 20-28/09. **Title:** "The formation and evolution of Nuclear

star clusters”.

- 2014 **Invited talk.** “Stellar N -body Dynamics”, Sexten, Italy, 08-12/09. **Title:** “The formation and evolution of Nuclear star clusters”.

TEACHING EXPERIENCE

- 2025 **Lecturer:** 1st year BSc, General Physics, Engineering Department, University of Padova, 88h.
- 2023 **Master’s internship lecturer:** Lecturer for a 1st year MSc internship project. Title of the project: “Dynamical evolution and fate of globular clusters in the Milky Way”. One student, 40h (2nd semester of the 2022-2023 Academic Year).
- 2022 **Lab insertion module lecturer:** “Dynamical evolution and fate of globular clusters in the Milky Way”, 1st year MSc. Two students, 40h (1st semester).
- 2021 **Lecturer,** 1st year MSc, “High-Energy Astrophysics”, Lund Observatory (Sweden). 15 students, 15h.
- 2020 **Lecturer,** 1st year MSc, “Stellar Structure and Evolution”, Lund Observatory (Sweden). 15 students, 3h;
- 2009 – 2010 **Teaching Assistant,** 3rd year BSc, *Numerical Methods in Astronomy*, Department of Physics and Astrophysics, Sapienza University of Rome, Italy. 50 students, 35h

SUPERVISION OF STUDENTS

8 PhD students co-supervised or mentored, 2 Master’s students and 1 Bachelor student supervised.

2022 – ongoing

- (1) **Co-supervisor** (with S. Salvadori, UniFi): **PhD student Alice Mori.**
- (2) **Co-supervisor** (with P. Di Matteo, GEPI): **PhD student Salvatore Ferrone.** Project: “The tidal evolution of Galactic globular clusters”. **One paper published:** Ferrone, S. Di Matteo, P., **Mastrobuono-Battisti, A.** et al., 2023, **A&A**, 673, A44.
- (3) **Supervisor** (graduated: 04/10/2022, GEPI): **Master’s student Lisa Delit.** Project: “Globular cluster disruption and the link with the Galactic nucleus” (funded through my grant).
- (4) **Co-supervisor** (with A. Milone, Padova Uni.; graduated 12/10/2022): **Master student Mariasole Maglione.** Project: “Multiple populations in globular clusters”, GEPI, Paris.

2021 – 2023

- (1) **Co-supervisor** (with P. Di Matteo, GEPI): **PhD student Giulia Pagnini.** Project: “The early and late evolution of our Galaxy through the lens of globular clusters”. **One paper published:** Pagnini, G., Di Matteo, P., Khoperskov, S., **Mastrobuono-Battisti, A.** et al., 2023, **A&A**, 673, A86.
- (2) **Co-supervisor** (with F. Calura, INAF-Bologna): **PhD student Elena Lacchin.** Project: “Mass loss in Magellanic Clouds Globular Clusters”. **One paper published:** Lacchin, E., Calura, F., Vesperini, E., **Mastrobuono-Battisti, A.**, 2022, **MNRAS**, 517, 1171.

2017 – 2021

Co-supervisor (with G. van de Ven and A. Sippel; graduated on 06/07/2021): **PhD student Francisco Aros.** Project: “Intermediate mass black holes in globular clusters”, MPIA, Germany. Graduated in July 2021 (magna cum laude). **Two published papers:**

1. Aros, F., Sippel, A., **Mastrobuono-Battisti, A.**, et al., 2020, **MNRAS**, 499, 4646
2. Aros, F., Sippel, A., **Mastrobuono-Battisti, A.**, et al., 2021, **MNRAS**, 508, 4385.

2017 – 2018: **Supervisor** (graduated on 19/06/2018): Bachelor student **Robin Herlan.** Project: “Dark matter density profiles in dwarf galaxies: the case of Sagittarius”, MPIA, Heidelberg, Germany. One paper published: Herlan, **Mastrobuono-Battisti**, Neumayer, **MNRAS**, **MNRAS**, 523, 2721.

2012 – 2017: Mentoring and co-supervision of 3 PhD students:

- (1) **Federico Abbate** (Milan University, Italy, graduated in 2019). **One paper published:** Abbate, **Mastrobuono-Battisti** et al. 2018, **MNRAS**, 473, 927.
- (2) **Athanasia Tsatsi** (MPIA, Germany, graduated in 2016). **One paper published:** Tsatsi, **Mastrobuono-Battisti** et al. 2017, **MNRAS**, 464, 3720;
- (3) **Danor Aharon** (Technion, Israel, graduated in 2016). **One paper published:**

Aharon, **Mastrobuono-Battisti** et al. 2016, ApJ, 823, 137.

ORGANISATION OF SCIENTIFIC MEETINGS

- 2023 **Co-Chair of the SOC and Co-I of the proposal** for the **EAS Special Session** “Understanding the connection between nuclear star clusters, black holes and galaxy evolution: merging observations and simulations”, **Kraków, Poland** (10-14/07/2023).
- 2021 **SOC member** for the conference “Multiple stellar populations in the next decade” (to be held in Padova, Italy, delayed due to the covid outbreak, <https://indico.ict.inaf.it/event/994/>)
- 2019 **SOC member and Co-I of the proposal** for the **EWASS special session** “The dynamics of stellar clusters”, Lyon (24-28/06/2019).
- 2018 **Principal organiser, chair of the SOC and PI of the funding proposal (15000 EUR granted)** for the conference “Survival of dense stellar clusters in the Milky Way system”, 85 participants, Heidelberg, Germany (19-23/11/2018).
- 2017 **(1) SOC member, discussion moderator and LOC co-chair** for the meeting: “Piercing the Galactic darkness”, 70 participants, Heidelberg, Germany (16-19/10/2017). **(2) Principal organiser, SOC and LOC member** for the MPIA Galaxy and Cosmology Department annual retreat, 90 participants, Schöntal, Germany (22-24/05/2017). **(3) SOC member and discussion moderator** for the meeting: “The exciting lives of galactic nuclei”, 40 participants, Ringberg, Germany (27/02-03/03/2017).

INSTITUTIONAL RESPONSIBILITIES

- 2023 – Member of the “**Lunar Gravitational Wave Antenna**” collaboration.
- 2022 – Member of the **ESO/ELT MOSAIC Science Team**.
- 2021 – **Co-organiser** of the “Paris Observatory Joint Galaxies and Cosmology Seminar”: <https://ggsapi.obspm.fr/seminars/>.
- 2021 **Referee and committee member** for the examination and evaluation of a **Master’s Thesis and a Bachelor’s Thesis** (Lund, Sweden). I refereed the Theses and I have been a panel member for the Thesis’ final evaluation.
- 2021 Member of the International Astronomical Union.
- 2018 – Member of **Gaia DPAC consortium (CU6 group)**, responsible for the **validation of the spectroscopic data in globular clusters**.
- 2016 – 2021 **Weekly group meetings organiser and chair** (Sweden and Germany).
- 2016 – Member of several **committees for the selection of future postdocs, PhD**

SELECTED PRESS COVERAGE (among more than 50 press articles, TV and radio interviews)

This is a partial list of the press releases concerning my work. They include interviews with journals, radio and television.

1. **List of citing articles (Nature):**
<https://www.nature.com/articles/nature14333/metrics>
2. **National Geographic:** <https://tinyurl.com/3mwjyhy3>
3. **Discovery Channel (Seeker):** <https://tinyurl.com/2z42frf9>
4. **Science:** <http://www.sciencemag.org/news/2015/04/how-did-moon-really-form>
5. Ranked **#47 among the top 100 science stories of 2015** on Discovery magazine:
<https://www.discovermagazine.com/the-sciences/the-moons-violent-birth>
6. **BBC:** <http://www.bbc.com/news/science-environment-32219494>
7. **NBC:** <https://tinyurl.com/2p8hdxth>
8. **Los Angeles Times:** <https://tinyurl.com/losAngTimes>
9. **Le Huffington Post:** <https://tinyurl.com/huffingtonpostfrance>
10. **Der Spiegel:** <https://tinyurl.com/derspiegelde>
11. **El Pais:** http://elpais.com/elpais/2015/04/08/ciencia/1428495111_666688.html
12. **Le Scienze (Italian version of Scientific American):**
http://www.lescienze.it/news/2015/04/09/news/impatto_terra_formazione_luna_composizio-ne-2559065/
13. **Il Corriere della Sera:** <https://tinyurl.com/ITcorrieredellasera>
14. **Technion press release:** <http://www.technion.ac.il/en/2015/04/the-origins-of-the-moon/>
15. **Swiss Television interview:** <https://tinyurl.com/Swiss-TV-Interview>

16. **Radio24, Giovani Talenti interview:** <https://tinyurl.com/yjsyd82f>
17. **GEPI press release on Palomar 5 tital tails:** <https://tinyurl.com/gepitidaltails>
18. **Contribution to book chapters on outstanding women in science and technology:**
 - <https://tinyurl.com/Agnese-Interview>
 - <https://www.donnamoderna.com/news/speciali/donne-come-noi/donne-come-noi-il-libro>

REVIEWING ACTIVITIES

- 2022 –2023 Expert reviewer: **Hubble Space Telescope Cycle 30 and 31 TAC** (External Stellar Populations Panelist).
- 2013 – Referee for a number of **IOP Journals** as well as **MNRAS, A&A and TAAR**.

CAREER BREAKS AND IMPACT ON PRODUCTIVITY

- 2022 **Maternity leave** (19 Nov 2022 – 10 March 2023, 4 months)
- 2020 **Maternity leave** (15 Feb 2020 – 15 Oct 2020, 8 months)

REFERENCES

- 1) **Dr. Paola Di Matteo**
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- 2) **Dr. Nadine Neumayer**
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