

## 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

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

**Group Leader:** 2 PhD students and 2 MSc students, co-funded through my MSCA fellowship

**Maternity leave** (Nov 2022 – March 2023)

### PREVIOUS POSITIONS

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-Institut für Astronomie, 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

*I have been able to attract funding for more than half a million EUR. In the following, I am listing my main fellowships, funded as the PI of the respective projects.*

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 (250000EUR).** Host institution: Galaxy and Cosmology Department, Max-Planck-Institut für Astronomie, Heidelberg, Germany.

2012 – 2014 **Lady Davis Fellowship (18000 USD).** Host institution: Technion, Israel.

2012 **HPC-Europa2 grant (3000 EUR, 50000 CPU hours and unlimited GPU hours for 3 months).** Host institution: GEPI – Observatoire de Paris.

2008 – 2011 **PhD Scholarship (60000EUR).** Host institution: Sapienza University of Rome.

### PRIZES AND AWARDS

- 1) **“Imagine”** prize for the outstanding scientific career, awarded by “Associazione Imagine”, 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

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: 6133 citations (ADS, as of 12/2023)

- **h-index: 28**;
- **70** publications in peer-reviewed, high impact-factor journals:
- **11** as the **first author** including: 1 **Nature** paper as the first author; **19** 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

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

#### TEACHING EXPERIENCE

- 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 (2<sup>nd</sup> semester of the 2022-2023 Academic Year).
- 2022 **Lab insertion module lecturer:** “Dynamical evolution and fate of globular clusters in the Milky Way”, 1<sup>st</sup> year MSc. Two students, 40h (1<sup>st</sup> semester).
- 2021 **Lecturer**, 1<sup>st</sup> year MSc, “High-Energy Astrophysics”, Lund Observatory (Sweden). 15 students, 15h.
- 2020 **Lecturer**, 1<sup>st</sup> year MSc, “Stellar Structure and Evolution”, Lund Observatory (Sweden). 15 students, 3h;
- 2009 – 2010 **Teaching Assistant**, 3<sup>rd</sup> year BSc, *Numerical Methods in Astronomy*, Department of Physics and Astrophysics, Sapienza University of Rome, Italy. 50 students, 35h

#### SUPERVISION OF STUDENTS

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

##### 2022 – ongoing

1. **Co-supervisor** (30%, 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.
- (1) **Supervisor** (100%; 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).
- (2) **Co-supervisor** (50%, with A. Milone, Padova Uni.; graduated 12/10/2022): **Master student Mariasole Maglione**. Project: “Multiple populations in globular clusters”, GEPI, Paris.

##### 2021 – ongoing

- (1) **Co-supervisor** (30%, 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.

##### 2021 – 2023

- (2) **Co-supervisor** (25%, 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** (45%, 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** (100%, 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** (20%, Milan University, Italy, graduated in 2019). **One paper published:** Abbate, **Mastrobuono-Battisti** et al. 2018, **MNRAS**, 473, 927.
- (2) **Athanasia Tsatsi** (30%, MPIA, Germany, graduated in 2016). **One paper published:** Tsatsi, **Mastrobuono-Battisti** et al. 2017, **MNRAS**, 464, 3720;
- (3) **Danor Aharon** (10%, 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 students, and internship students** (MPIA, Germany and Obs. de Paris).

### 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** and **A&A**.

## 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)

My first child was born at the beginning of the first COVID wave (March 21, 2020). The limited access to childcare during the pandemic drastically affected my work time. I had to combine both from home. My second child was born eight months ago and I have been taking care of him by myself since then.

## REFERENCES

- 1) **Dr. Paola Di Matteo**  
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