CURRICULUM VITAE

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EDUCATION
- **BSc in Astronomy,** *magna cum laude***, 2015-2018,** Alma Mater Studiorum, University of Bologna, Italy. Title: *Structure and kinematics of the Milky Way* (Supervisor: Prof. D. Dallacasa).
- **MSc in Astrophysics and Cosmology,** *magna cum laude***, 2018-2020**, Alma Mater Studiorum, Università di Bologna, Italia. Title: *Looking for intermediate mass black holes in globular clusters using action-based dynamical models* (Supervisor: Prof. C. Nipoti; co-supervisor: Dr. R. Pascale).
  Link to my Master thesis: https://amslaurea.unibo.it/21272/

CURRENT OCCUPATION
PhD student in Astronomy at the University of Padova since 01/10/**2020**. Title of the project: Gas in galaxies: *The effects of environmental and feedback processes on galaxy evolution.* Supervisor: Dr. B.M. Poggianti; co-supervisors: Dr. M. Gullieuszik and Dr. A. Moretti.

RESEARCH VISITS
- 11/04/**2023**-02/06/2023: University of Minnesota, Minneapolis (MN)

RELEVANT SCIENCE OUTREACH EXPERIENCES
- 05/2017-08/**2017**: guide at the Loiano telescope (Bologna, BO), developing confidence in talking in public about astronomical topics;
- 29/09/**2023**: science communication talk and speed talk to a public of adults and high school students;
- **2023**: member of the Seminar organization group at the Astronomical Observatory of Padova.

TECHNICAL SKILLS
Programming languages: *Python* (numpy, scipy, matplotlib, seaborn, astrodendro, astropy), *Astrodrizzle* (HST photometric data reduction). Basic knowledge in *Fortran90*.
Software: *galfit, tinytim, Latex, topcat, SAO DS9, agama*.

SCIENTIFIC SKILLS and BACKGROUND

Scientific background includes a good knowledge of state-of-art observations and models regarding the properties and driving mechanisms of the **star-forming process** and **clump formation**, including turbulence, stellar feedback, dynamical and stellar evolution.

Expertise about the tracers and proxies of the properties of star-forming clumps, including **mass, luminosity** and **size distribution functions**; **luminosity, mass** and **SFR-size relations**; **morphological evolution**.

Strong focus on the variation of the properties of star-forming clumps across cosmic time and different environments. In particular I studied the properties of stellar clumps formed from gas stripped from cluster galaxies undergoing strong **ram-pressure stripping**, surrounded by the hot, high-pressure intracluster medium.

For my Master thesis I developed a good background about **globular clusters formation** and **evolution**, both from the stellar and dynamical point of view (mass segregation, equipartition, influence of binaries and Intermediate Mass Black Holes, three-body interactions). In addition to that, I developed a good background about distribution functions for dynamical systems, including in particular **action-based distribution functions**, their properties and advantages.

Technical skills focused on **HST** photometric **data reduction** and **analysis**, development of an objective algorithm for the **detection** and **selection of star-forming clumps** in ram-pressure stripped galaxies (mainly using the Astrodendro software package) and capabilities in **big datasets** statistical analysis. The study of the **completeness** of the sample of clumps let me develop good skills in the generation of clumps **mock images** starting from intrinsic properties like mass and age, to be translated into observables like the density flux in a certain photometric filter.

I have also developed capabilities in exploring and using **MUSE datacubes**; basic knowledge of data reduction of **NIRCam** (JWST), developed during the writing an **observation proposal** (to be submitted).

For my Master thesis I developed good skills in **parallel coding** with mpi, as well as the **generation of self-consistent dynamical models** for galaxies and globular cluster via the use of action-based distribution functions.

IT skills: the strong interest in computational Astrophysics led to a good ability in using computers and calculators, with a quite strong knowledge in *Linux* and *Windows* systems.

SCIENTIFIC INTERESTS

- Formation and evolution of **stellar clumps**, whether they are star-forming or **globular clusters**;
- **processes driving clump formation**, especially when involving gas dynamics like turbulent cascade and stellar feedback;
- **star-formation process** as a whole, how the **environment** (at different scales, from the one surrounding the galaxy to the one surrounding the single clump) influences it and how this can be related to the evolution across cosmic time of scaling relations like the **galacitc SFR-stellar mass main sequence** and the **morphological evolution** of star-forming galaxies;
- **galaxy evolution**, in particular from the dynamical point of view;
- morphological evolution of galaxies, **clump survivability** and disruption timescales, dynamical and orbital **evolution of single stars**.

CONTRIBUTED TALKS

- 20-23/09/**2022**. **CLUSTER3**, Bologna (BO), Italy: *High-resolution imaging of 6 GASP ram-pressure stripping galaxies with HST*.
- 03-07/07/**2023**. **A multi-wavelength view on globular clusters near and far: from JWST to the ELT**, Sexten (BZ), Italy: *Star-forming clumps in the peculiar environment of jellyfish galaxies*.

PHD SCHOOLS AND WORKSHOPS

- 12-23/07/**2021**: International Summer School on the *Interstellar Medium of Galaxies, from the Epoch of Reionization to the Milky Way*, organized by "Le Centre pour la Communication Scientifique Directe", online-only attendance was available;
- 23/09/**2021**-01/12/2021: XXXII Winter School of Astrophysics, "*Formation and evolution of galaxy clusters across cosmic time*", organized by the "Instituto de Astrofísica de Canarias" (IAC), online attendance;
- 04-21/10/**2022**: MIAPP (Garching, Munich) program "*Star-Forming Clumps and Starbursts across Cosmic Time*", in-person attendance, one plot presentation.

CONFERENCES ATTENDED WITH POSTER PRESANTION

- 25-29/04/**2022**: 2022 Spring Symposium, *CLUSTERS 2022: Challenging Our Cosmological Perspectives Symposium Schedule*, virtual-only attendance;
- 27/06/**2022**-01/07/2022: *European Astronomical Society annual meeting*, Valencia;
- 26-30/06/**2023**: *The physics of Star Formation-From Stellar Cores to Galactic Scales*, Lyon.

Native language: Italian

Other languages:
- B2 skills in **English** listening, reading, speaking and writing developed independently.
- B1 skills in **Spanish** listening, reading, speaking and writing developed independently.

Other skills: ability to work in group, collaborating with team mates in order to obtain the best division of tasks, essential skill in modern Astronomy.
Ability to work under pressure.

FIRST AUTHOR PUBLICATIONS LIST: NASA/ADS library

https://ui.adsabs.harvard.edu/public-libraries/Uz6wbuCZToGRY0qz7KLOJQ

CO-AUTHOR PUBLICATIONS LIST: NASA/ADS library

https://ui.adsabs.harvard.edu/public-libraries/ao3CZvuTRGOcxitKb5eikg