

Ettore Bronzini

last update: September 23, 2023

Address: via Gobetti, 101, Bologna (BO), Italy

Affiliation: University of Bologna/INAF

Date of birth: March 25th, 1997

Place of birth: Bari (BA), Italy

Academic email: etto.re.bronzini2@unibo.it

INAF email: etto.re.bronzini@inaf.it

ORCID profile: Ettore Bronzini

LinkedIn profile: Ettore Bronzini

OVERVIEW

I am a Ph.D. student in Astrophysics at the University of Bologna. My research field is observational high-energy astrophysics: in particular, I am interested in understanding the physical processes connected with accreting compact objects, such as supermassive black holes in the center of active galaxies. I am also interested in studying the relativistic jets produced by these objects from observational and theoretical points of view. In particular, my interests include high- and very high-energy emission in jets, as well as their role in particle production and acceleration. This field is the topic of the Ph.D. project I have been currently working on, with a particular focus on its prospects for the Cherenkov Telescope Array (CTA). I am expert in data analysis of major high-energy telescopes (e.g., *Chandra*, *XMM-Newton*, *Swift*, *NuSTAR*, *Fermi-LAT*, *MAGIC*) and non-thermal Spectral Energy Distribution (SED) modeling of radio galaxies. With some colleagues, we founded the first Very High-Energy Astrophysics group in Bologna.

LANGUAGES

Italian (mother-tongue), English (B2), Spanish (A2), French (A1)

EMPLOYMENT

Teaching Tutor

November, 2023

Teaching tutor in the module of High-Energy Astrophysics of the Multiwavelength Astrophysics Laboratory of the Master in Astrophysics and Cosmology at the University of Bologna.

Internship Research Student

May, 2021 - November, 2021

Internship to prepare the Master's degree thesis at IRA-INAF in Bologna.

Project title: *A multi-wavelength study of a sample of young radio sources*

EDUCATION

Alma Mater Studiorum - Università di Bologna, Bologna, Italy

November 2022 - present

PhD in *Astrophysics* - XXXVIII cycle

Thesis title: *VHE gamma-ray astronomy: the CTA new eye on jetted AGN* (temporary)

Supervisor: Dr. E. Torresi (INAF-OAS)

Academic supervisor: Prof. C. Vignali (UniBo)

Co-supervisors: Dr. P. Grandi (INAF-OAS), Dr. R. Zanin (CTAO), Dr. A. Comastri (INAF-OAS)

Alma Mater Studiorum - Università di Bologna, Bologna, Italy

December 2019 - March 2022

Master degree in *Astrophysics and Cosmology*

Final mark: 110/110 with honors

Thesis title: *Investigating High-Energy Emission in Young Radio Galaxies*

Supervisor: Prof. C. Vignali (UniBo)

Co-supervisor: Dr. G. Migliori (INAF-IRA)

Università degli Studi di Bari Aldo Moro, Bari, Italy

September 2015 - December 2019

Bachelor degree in *Physics*

Final mark: 107/110
Thesis title: *Signal formation in electronic devices*
Supervisor: Prof. F. Loparco (UniBa/INFN)

Liceo Classico Socrate di Bari, Bari, Italy
September 2010 - July 2015
High School Diploma
Final mark: 85/100

**MAIN
INTERNATION.
COLLABORAT.**

Member of

- the INAF (November 2022, present);
- the MAGIC Collaboration (November 2022, present);
- the CTA Consortium (December 2022, present);
- the LST Collaboration (November 2022, present).

**DATA ANALYSIS
EXPERIENCE**

Large experience in data handling, spectral analysis and imaging of *Chandra*, XMM-*Newton*, *NuSTAR* and *Swift* data.
Good experience in MAGIC and *Fermi-LAT* data reduction and analysis.
Good experience in spectral analysis and photometric and kinematic studies of *HST* and *SOFI* data.
Good experience in spectral analysis and imaging reconstruction of *VLA* data.
Large experience with mainly astrophysical and statistical python packages (e.g., *astropy*, *scipy*, *seaborn*, etc.).

**COMPUTER
SKILLS**

Programming Languages
C (basic), Python (advanced), \LaTeX (advanced)

Scientific Software

Xspec (advanced), DS9 (advanced), HEASoft (medium), Sherpa (medium), SAS (medium), Fermipy (medium), CASA (basic), IRAF (basic), ROOT Cern (basic), TOPCAT (basic), Mathematica (basic).

Operating Systems

Mac OSX, Linux, Windows

**PROPOSAL
EXPERIENCE**

Telescope: XMM-*Newton*
Role: Co-PI
Proposal ID: 0904530201
Status: observed

**MAIN
COLLABORAT.
(alphabetic order)**

Dr. A. **Arbet-Engels** (MPP), Dr. A. **Comastri** (INAF-OAS), Dr. L. **Di Venere** (INFN-Bari), Dr. M. **Giroletti** (INAF-IRA), Dr. P. **Grandi** (INAF-OAS), Dr. A. **Marinelli** (UniNa), Dr. G. **Migliori** (INAF-IRA), Dr. M. **Sobolewska** (CfA), Dr. E. **Torresi** (INAF-OAS), Dr. A. **Tramacere** (UniGe), Prof. C. **Vignali** (UniBo/INAF), Dr. R. **Zanin** (CTAO)

PROJECTS

I am currently leading two research projects: one focusing on the X-ray emission of GeV-emitting compact symmetric objects, and another project within the MAGIC collaboration (details restricted). Additionally, I am actively involved in various ongoing collaborative projects with researchers from Bologna, Bari, and Bonn.

**RESEARCH
GRANTS**

2023 - INAF Mini-Grant (€10k), *Investigating the Quiescent State of the TeV-emitting Radio Galaxy 3C 264*.

**LIST OF
PUBLICATIONS**

As first author:
Bronzini E. et al., *in preparation*

As corresponding author:
Bronzini E. on behalf of the MAGIC collaboration et al., *in preparation*

Others:
Cherenkov Telescope Array Consortium, T. et al. 2023. *Prospects for γ -ray observations of the Perseus galaxy cluster with the Cherenkov Telescope Array*. arXiv e-prints. doi:10.48550/arXiv.2309.03712.

Proceedings:
Co-author of several proceedings in
• **International Cosmic Ray Conference (ICRC) 2023**, 26/07-03/08/2023, Nagoya, Japan;

**WORKSHOPS
and
CONFERENCES**

Contribution: LOC
Bologna&Friends: workshop on radio galaxies, 01-02/03/2023, Bologna, Italy.

Contribution: talk
TeVPA 2023, 11-15/09/2023, Naples, Italy;
MAGIC F2F Meeting of Physics Working Groups, 13-17/02/2023, Rijeka, Croatia;
Bologna&Friends: workshop on radio galaxies, 01-02/03/2023, Bologna, Italy.

Contribution: poster
Active Galactic Nuclei XIV: The Renaissance of Black Holes and Galaxies, 23-27/05/2023, Florence, Italy.

Contribution: participant
AVENGe - Advances in Very High-Energy Astrophysics with Next-Generation Cherenkov Telescopes, 29-31/05/2023, Rome, Italy;
CTAO/CTAC General Meeting Granada, 24-28/04/2023, Virtual;
ASTRI and LHAASO Workshop, 07-08/03/2023, Milan, Italy;
9th MAGIC Stereo Analysis Workshop, 20-24/02/2023, Rijeka, Croatia;
PHYSTAT Gamma 2022, 27-30/09/2022, Virtual;
6th workshop on “Compact Steep Spectrum and GHz-Peaked Spectrum Radio Sources”, 10-14/05/2021, Virtual.

ETTORE Bronzini