

# Elia Pizzati

## Curriculum Vitae

Zaaijerplein 149

2333BG, Leiden

Netherlands

+39 345 8970 224

pizzati@strw.leidenuniv.nl

eliapizzati.github.io

elia-pizzati

PhD student at Leiden Observatory. Working on constraining the growth and properties of Super-Massive Black Holes in the early Universe using large-volume cosmological simulations. Publications on a broad range of topics, from galaxy evolution to gravitational waves and protoplanetary discs.

8 refereed publications, of which 5 as a first-author; total of >100 first-author citations. A complete publication list is enclosed and available on NASA/ADS.

### Education

- 2021–present **PhD in Astrophysics**, *Leiden Observatory*, Leiden.  
*Supervisors:* Prof. Joe Hennawi and Prof. Joop Schaye.
- 2019–2021 **Master's Degree in Physics**, *University of Pisa*, Pisa.  
Final grade: *110/110 cum Laude*, with a special mention from the committee (*Abbraccio accademico*) for the "remarkable grades and exceptional thesis work". GPA: *30.0/30*
- 2016–2022 **Diploma in Physics**, *Scuola Normale Superiore*, Pisa.  
Best Italian University for Physics; admits on merit only about ten physics students per year out of several hundred applications. Final Grade: *100/100*. GPA: *28.5/30*
- 2016–2019 **Bachelor's Degree in Physics**, *University of Pisa*, Pisa.  
Final grade: *110/110 cum Laude*. GPA: *29.7/30*
- 2011–2016 **High School Diploma**, *Liceo Scientifico Galileo Galilei*, Dolo (VE).  
Final grade: *100/100 cum Laude*.

### Research experience

- 2021-2024 **PhD project**, *Leiden Observatory*.  
Several projects on high-*z* quasar and galaxy clustering, supermassive black hole growth, quasar proximity zones.
- 2019-2021 **Bachelor's and Master's Theses**, *SNS and University of Pisa*.  
*Supervisors:* Prof. Andrea Ferrara and Dr. Andrea Pallottini; worked on a model of outflows in young galaxies; published two papers in MNRAS with a total of more than 40 citations.
- 2020 **INFN/LIGO Exchange Program**, *IGC, Pennsylvania State University*.  
Worked with Prof. Bangalore Sathyaprakash on parameter inference in the context of third-generation detectors' tools development; published a paper with more than 30 citations.
- 2019 **LEAPS Program**, *Leiden Observatory*.  
Worked with Prof. Giovanni Rosotti on a model for gauging the strength of turbulence in protoplanetary discs; published a paper with ~5 citations in less than one year.
- 2015 **International Summer Internship Program**, *MPIA, Heidelberg*.  
Three-week project supervised by Dr. Kai Noeske; analyzed data from the AEGIS survey.

### Teaching and mentoring experience

- 2023-2024 **Master's student supervision**, Boyi Ding.  
Supervised a project on "massive black holes in the FLAMINGO cosmological simulation".

2022-2024 **Teaching Assistant at Leiden University.**

Teaching the courses "Galaxies and Cosmology", "Galaxies: Structure and Dynamics" for Bachelor's and Master's students in the Astronomy department.

---

## Achievements

2022 **"Geppina Coppola" Prize for the best Master's Thesis in Astrophysics.**

Winner of a 1,500€ prize for the best Astrophysics Thesis in Italy out of more than 50 candidates; held a public seminar discussing my work at the Naples' Astronomical Observatory.

2022 **"Carlo Azeglio Ciampi" Prize for the best Italian Master's Thesis.**

Winner of a 3,500€ prize for the best scientific Master's Thesis in the period 2020-2022.

2019 **NSF/INFN Exchange Program.**

Winner of a 5,000€ scholarship within the NSF/INFN Exchange Program.

2019 **LEAPS Scholarship.**

Selected for the LEAPS program at Leiden Observatory; full scholarship of around 4,000€.

2016 **Scuola Normale Superiore Admission Test.**

Admitted to the Science Class (2016–2021); won a full scholarship of about 15,000€ per year.

---

## Extracurricular activities

2020-2021 **Tutoring and teaching at SNS.**

Tutor for Physics students at my university; contributed to holding a lecture within the "SNS Internship in Physics for High School Students".

2016 **National Physics Olympiad and National Astronomy Olympiad.**

Took part in the national phase of the Physics Olympiad in 2016 and of the Astronomy Olympiad in 2015. I won a bronze medal in Physics and a gold medal in Astronomy.

2015–2016 **National Philosophical Debate Tournament.**

Won a team competition of philosophical debate organised by the University of Padua. I was awarded the title of "Best Orator" and performed a public debate at EXPO 2015 in Milano.

2006–2017 **Scout and volunteering experience.**

I have been part of the Scout association for more than 10 years. This experience allowed me to develop group working, managerial and practical skills. I lived several volunteering experiences; I organised a 3-days full immersion in astronomy for teenagers; I was responsible of a group of entertainers working with more than one-hundred children.

---

## Talks

Conferences + invited talks

---

## Computer skills

Working knowledge of Python,  $\text{\LaTeX}$ , GitHub, bash

Good knowledge of C, C++, Fortran.

Extensive use of Python for numerous projects (including Bayesian analysis, MCMC, data analysis and data visualization); familiarity with cosmological simulations; knowledge of Python packages such as Matplotlib, SciPy, NumPy, AstroPy, Pandas;

---

## Language skills

Italian Mother tongue

English Fluent

French Basic

*TOEFL score (2020): 111/120  
equivalent to A2, attested by SNS*

## Publications

### First author

1. **Pizzati, E.**, A. Ferrara, A. Pallottini, S. Gallerani, L. Vallini, D. Decataldo, and S. Fujimoto. “Outflows and extended [C II] haloes in high-redshift galaxies”, *Monthly Notices of the Royal Astronomical Society*, vol. 495, no. 1, pp. 160–172, 2020. doi:10.1093/mnras/staa1163.
2. **Pizzati, Elia**, Surabhi Sachdev, Anuradha Gupta, and Bangalore Sathyaprakash. “Toward inference of overlapping gravitational-wave signals”, *Physical Review D*, vol. 105, no. 10, 2022. doi:10.1103/PhysRevD.105.104016.
3. **Pizzati, E.**, Ferrara, A., Pallottini, A., Sommovigo, L., Kohandel, M., and Carniani, S., “[C II] Haloes in ALPINE galaxies: smoking-gun of galactic outflows?”, *Monthly Notices of the Royal Astronomical Society*, vol. 519, no. 3, pp. 4608–4621, 2023. doi:10.1093/mnras/stac3816.

### Contributing author

1. Sommovigo, L. et al. (including **E. Pizzati**), “A new look at the infrared properties of  $z \approx 5$  galaxies”, *Monthly Notices of the Royal Astronomical Society*, vol. 517, no. 4, pp. 5930–5941, 2022. doi:10.1093/mnras/stac2997.
2. Fudamoto, Y. et al. (including **E. Pizzati**), “The ALMA REBELS Survey: Average [C II] 158  $\mu\text{m}$  Sizes of Star-forming Galaxies from  $z \approx 7$  to  $z \approx 4$ ”, *The Astrophysical Journal*, vol. 934, no. 2, 2022. doi:10.3847/1538-4357/ac7a47.
3. Pallottini, A. et al. (including **E. Pizzati**), “A survey of high- $z$  galaxies: SERRA simulations”, *Monthly Notices of the Royal Astronomical Society*, vol. 513, no. 4, pp. 5621–5641, 2022. doi:10.1093/mnras/stac1281.