

## Education

- 2007-2012 **Maturità Scientifica**, *Liceo Scientifico Archimede, Messina*, 100/100 L
- 2012-2016 **Laurea Triennale in Matematica (B.S.)**, *Università di Pisa*, 110/110 cum laude
- Advisor Enrico Sbarra
- Thesis Title Risoluzioni libere di ideali monomiali
- 2017-2019 **Laurea Magistrale in Matematica (M.S.)**, *Università di Pisa*, 110/110 cum laude
- Advisor Alessandro Berarducci
- Thesis Title Surreal Numbers, Transseries and Omega Maps
- 2020-2024 **PhD in Pure Mathematics**, *University of Leeds*
- Supervisors Vincenzo Mantova and H. Dugald Macpherson
- Thesis Title Structural Investigations in some Classes of o-minimal Fields. <https://etheses.whiterose.ac.uk/id/eprint/36168>

## Professional Experience

- 2020 **Substitute Teacher**, *ITCG Fermi Pontedera*, Informatics
- 2020-2023 **Math Tutor**, *Stem-up*

## Research Interests

Model theory, o-minimality, category theory, mathematical logic.

## Publications

- 2021 Berarducci, A., Freni, P. (2021). *On the value group of the transseries*. Pacific Journal of Mathematics, 312(2), 335-354. <https://msp.org/pjm/2021/312-2/p04.xhtml>, arxiv version: <https://arxiv.org/abs/2101.04002>

## Preprints

- 2023 *On Vector Spaces with Formal Infinite Sums*. <https://arxiv.org/abs/2303.08000>
- 2024 *T-convexity, Weakly Immediate Types and T-λ-Spherical Completions of o-minimal Structures*. <https://arxiv.org/abs/2404.07646>
- 2024 *On the structure of T-λ-spherical completions of o-minimal fields*. <https://arxiv.org/abs/2407.07442>
- 2024 *T-convexly valued o-minimal fields are definably spherically complete*. <https://arxiv.org/abs/2411.16706>
- 2025 (j.w. Angus Matthews) *Residually Constructible Extensions*. <https://arxiv.org/abs/2501.10033>

## Posters

- 2022 On formal infinite linear combinations (Presented in different versions at: Model Theory and Applications, Cetraro 2022; Unimod 2022, Leeds)

## Talks

- 2025 *Strong vector spaces and some torsion theories of  $\text{Ind}(\text{Vect}^{\text{op}})$* . Bologna, Logic, Categories, and Applications Seminar.
- 2024 *Weakly immediate types and spherical completions of o-minimal structures*. Burnley, 30th LYMoTS meeting; *T-convexity and T- $\lambda$ -spherical completions of o-minimal structures*. Manchester Logic Seminar.
- 2023 *What Should Strong Vector Spaces be?* Online, ItaCa Fest May 2024, Leeds, Impromptu Leeds-MacMaster Model Theory days; *Summability in Algebras of Generalized Power Series*. Leeds, Postgraduate Logic Seminar; *How do you solve a system of polynomial equations?* Leeds, Postgraduate Pure Math Seminar.
- 2022 *What are Transseries?* Leeds, Postgraduate Pure Math Seminar; *Strong Vector Spaces* Minitalk at LYMoTS/SEEMOD meeting.
- 2021 *Around exponentiation in fields of generalized power series*. Leeds, Postgraduate Logic Seminar; *Gabrielov's theorem and the model completeness of reals with restricted analytic functions*. Leeds, Postgraduate Pure Math Seminar.

## Teaching Experience

- 2021 Tutoring: Numbers and Systems.
- 2022 Tutoring: Sets, Sequences and Series. Workshop: Further Linear Algebra.
- 2023 Tutoring: Sets, Sequences and Series.

## Further Experience

- 2023 Organiser of the British Postgraduate Model Theory Conference 2023.
- 2022-2023 Organiser of the Leeds Postgraduate Logic Seminar.
- 2022 Helping in the organisation of the Unimod 2022 programme.

## Fundings and Awards

- 2020-2024 School of Mathematics Full-Time Doctoral Scholarship at the School of Mathematics, University of Leeds.
- 2010-2012 Bronze Medal at the Italian Mathematics Olympiads in years 2010, 2011, 2012.

## Computer skills

- Coding C, C#, octave, SQL (basic experience with C++, Java, javascript, M2, AGDA).
- Other  $\text{\LaTeX}$ , html, css.
- Office Excel.

## Languages

- Fluent Italian (native speaker), English.
- Good German.