Lorenzo Sauras-Altuzarra
Mathematician

Academic career and positions held

• PostDoc, Institute of Mathematics of the Romanian Academy	2024
• PhD, Vienna University of Technology	2019 – 2024
• MSc in mathematics, University of Vienna	2015 – 2018
Specialization: mathematical logic and theoretical computer science	
• BSc in mathematics, University of Zaragoza	2010 – 2015

Main research interests

• Number theory (in particular, calculation of integer sequences, irrationality and transcendence, geometry of numbers and iteration)

• Enumerative combinatorics

• Logic (in particular, extractive proof theory and recursion theory)

Journal articles

• *An arithmetic term for the factorial function*	2024
Examples and Counterexamples; coauthor: M. Prunescu; `DOI link`	
• *Lattice properties of partial orders for complex matrices via orthogonal projectors*	2022
Linear and Multilinear Algebra; coauthors: C. R. Cimadamore, L. A. Rueda and N. J. Thome; `DOI link`	
• *Some properties of the factors of Fermat numbers*	2022
The Art of Discrete and Applied Mathematics; `DOI link`	
• *Some applications of Baaz's generalization method to the study of the factors of Fermat numbers*	2022
Journal of Logic and Computation; `DOI link`	

Theses

• *From Logic to Discrete Geometry via Lattices*, PhD thesis, Vienna University of Technology	2023
Supervisor: Matthias Baaz; `DOI link`	
• *Hypergeometric closed forms*, MSc thesis, University of Vienna	2018
Supervisor: Christian Krattenthaler; `DOI link`	
• *Gödel's Incompleteness Theorem*, BSc thesis, University of Zaragoza	2015
Supervisor: Carlos Gómez-Ambrosi; `link`	

Organization of scientific events

• Conference on Techniques from Logic in Mathematics (`website`)	2023
Member of the Organizing Committee	

Invited presentations

• *Proof mining in Fermat numbers* (`abstract`), Institute of Mathematics of the Romanian Academy	2024
At the "Formulas in Number Theory - Research in Pairs Workshop" (`website`)	
• *Hilbert's 10th problem*, Tbilisi State University	2019
At the "Fifteenth International Tbilisi Summer School in Logic and Language" (`website`)	

Contributed presentations

• *Recent results on the geometry of numbers* (`slides`)	2023
At the "25th Central European Number Theory Conference" (`website`)	
• *A geometric description of the factors of Fermat numbers* (`abstract`)	2023
At the "32èmes Journées Arithmétiques"(`website`)	
• *Covers and point-lattices* (`abstract`)	2023
At the "7th mini symposium of the RNTA" (`website`)	
• *On the enumeration of Krom functions* (`abstract`, `slides`)	2023
At the "Dutch Days of Combinatorics 2023" (`website`)	
• *Special lattices of orthogonal projectors* (`abstract`)	2022

At the "Maribor Graph Theory Conference" (`website`)
• *Generalization of proofs of universal sentences* (`abstract`) 2022
At "Celebrating the 2022 World Logic Day" (`website`)
• *Divisibility criteria for Fermat numbers* 2021
At the "3rd Workshop on Proof Theory and its Applications" (`website`)
• *On the divisibility of Fermat numbers* 2021
At the "14th International Conference on Discrete Mathematics" (`website`)
• *Generalization of arithmetical proofs* (`video`, `Q & A video`) 2021
At "Celebrating 90 Years of Gödel's Incompleteness Theorems" (`website`)
• *Generalization of proofs and codification of graph families* 2021
At the "8th European Congress of Mathematics"
• *Arithmetical applications of Baaz's generalization method* (`extended abstract`, `slides`, `video`) 2021
At "Logical Perspectives 2021: Summer School and Workshop" (`website`)

Seminar presentations

• *Aplicaciones recientes del método de generalización de Baaz a la teoría de números* 2023
At "Seminario Doctorado Rubio de Francia" (University of Zaragoza)
• *Recent observations on the factors of Fermat numbers* (`abstract`) 2022
At the Computational Logic Seminar (Vienna University of Technology)
• *An Introduction to Finite and Infinite Ramsey Theory* 2016
At "Arbeitsgemeinschaft Diskrete Mathematik" (Vienna University of Technology) (`website`)

Institutional responsibilities

• Student representative, University of Zaragoza 2010 – 2015
At the Degree Studies Commission
• Student representative, University of Zaragoza 2010 – 2015
At the Quality Assurance Commission of the Degree in Mathematics
• Mentor, University of Zaragoza 2013 – 2014
At the Mentor Program for Bachelor Students
• Student representative, University of Zaragoza 2010 – 2013
At the Quality Evaluation Commission of the Degree in Mathematics
• Student representative, University of Zaragoza 2010 – 2011
At the Students Committee

Grants and scholarships

• Research in Pairs in Bucharest Program, Institute of Mathematics of the Romanian Academy 2024
With Mihai Prunescu
• Erasmus Scholarship, University of Bucharest 2017
• Santander Bank's Ibero-American Grant, National University of South 2013

Languages

• English (C1) • French (A2) • German (A1) • Romanian (A1) • Spanish (native)

Programming languages

• C/C++ (basic) • Fortran (basic) • Maple (advanced) • Python (intermediate)

Edition and layout, markup languages

• Adobe Photoshop (basic) • HTML (basic) • LaTeX (intermediate)

References

• Matthias Baaz, Vienna University of Technology, e-mail: `baaz@logic.at`

• Carlos Gómez-Ambrosi, University of Zaragoza, e-mail: `cga@unizar.es`

• Michal Křížek, Czech Academy of Sciences, e-mail: `krizek@math.cas.cz`

• Mihai Prunescu, University of Bucharest, e-mail: `mihai.prunescu@fmi.unibuc.ro`

• Néstor Thomé, Technical University of Valencia, e-mail: `njthome@mat.upv.es`