

Emanuele Tron

📍 Postdoctoral fellow
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Research

My work takes place in number theory, especially Diophantine and arithmetic geometry and analytic number theory. My main research interests are as follows.

Effective André–Oort results; André–Oort problems in families and unlikely intersections in products of modular curves. Diophantine properties of Heegner points; truncated versions of hyperbolic equidistribution. Multiplicative dependence of singular moduli and mixed Ax–Schanuel statements. Effective automatic uniformity in André–Oort bounds.

Height problems in algebraic groups and GCDs in Vojta’s conjecture. The Ailon–Rudnick–Silverman conjecture and statistics in arithmetic intersection theory on Néron models. Galois representations and division fields; Artin’s primitive root conjecture. Links with the arithmetic of abelian varieties with complex multiplication. Sparse Sato–Tate distributions.

Keywords. Unlikely intersections, effective André–Oort, singular moduli, complex multiplication, geometric GCDs, Ailon–Rudnick conjecture, arithmetic algebraic groups.

MSC areas. Primary: 11G, 11R, 14G. Secondary: 11J, 30D, 03C.

Publications

- *Effective multiplicative independence of 3 singular moduli* (w/ Yu. Bilu, S. Gun)
arXiv:2207.05183 (3 cit.)
- *The greatest common divisor of linear recurrences*
Rendiconti Sem. Mat. Univ. Pol. Torino **78.1** (2020), 103–124 (5 cit.)
- *The density of numbers n having a prescribed G.C.D. with the n th Fibonacci number*
(w/ C. Sanna)
Indag. Math. **29.3** (2018), 972–980 (12 cit.)
- *The distribution of self-Fibonacci divisors* (w/ F. Luca)
Fields Inst. Commun. **77**, Springer (2015), 149–158 (20 cit.)

Positions

9/2023– Postdoctoral fellow
current *Institut de mathématiques de Jussieu – Sorbonne Université*
1/2023– Visiting assistant professor
8/2023 *Institut Fourier – Université Grenoble Alpes*

Visits

Institut for Matematiske Fag, Københavns Universitet, July 2021

Talks

Atelier j -invariant, Clermont–Ferrand 6/12/2023
32èmes Journées arithmétiques, Nancy 7/7/2023
The seventh mini symposium of the RNTA, Roma 4/5/2023
Density problems in arithmetic workshop, Luminy 6/4/2023
Séminaire Théorie des nombres, Grenoble 12/1/2023
Séminaire Groupes, algèbre et géométrie, Poitiers 24/11/2022
Séminaire Théorie des nombres, Limoges 3/10/2022
Séminaire des doctorants, Bordeaux 15/4/2022
Séminaire des Jeunes Chercheurs du LMNO, Caen 28/10/2021
Number Theory Seminar, København 19/7/2021
Une petite journée GANDA, Bordeaux 3/4/2019
2nd Number Theory Meeting, Torino 26/10/2017

Education

2022 Ph.D. in pure mathematics (Université de Bordeaux)
Thesis: *Problems of unlikely intersections in arithmetic*. Advisor: Yuri Bilu.
2018 M.Sc. in mathematics (Università di Torino)
Thesis: *Effective André–Oort*. Advisors: Yuri Bilu and Cristiana Bertolin.
2016 B.Sc. in mathematics (Scuola normale superiore di Pisa)
Thesis: *Zeta functions over finite fields and auxiliary functions in intersection theory*.
Advisors: Umberto Zannier and Giuseppe Puglisi.

Teaching

Sorbonne Université
23–24 spring LU1MA002 Mathématiques pour les études scientifiques 2 (72h TD)
23–24 fall LU2MA260 Séries et séries de fonctions (72h TD)
Université Grenoble Alpes
22–23 spring MAT402 Suites et séries de fonctions (32h TD)
22–23 spring MAT209 Algèbre et analyse approfondies (32h TD)
22–23 spring MAT206 Introduction à la biologie mathématique (64h CM)
Université de Bordeaux
21–22 spring 4TPU213U Mathématiques discrètes (24h TD)
21–22 spring 4TPU207U Algèbre linéaire 1 (72h TD)
20–21 fall 4TPM103U Bases mathématiques pour les sciences (32h TD)
20–21 fall 4TPV102U Mathématiques pour la biologie (32h TD)
19–20 fall 4TPM103U Bases mathématiques pour les sciences (32h TD)

Other

Habilitations. I am holder of the *Qualification* for French *Maître de conférences* (assistant professor), CNU section 25, for the 2023–2027 period.

Memberships. Member of ANR project JINVARIANT and of CNRS research group *Algebraic Geometry and Complex Geometry*. Member of the French Mathematical Society.

Refereeing. I have carried out peer reviews for: Am. Math. Mon., Can. Math. Bull., Eur. J. Pure Appl. Math., Fib. Q., Int. J. Number Theory, J. Integer Seq., J. Number Theory., Rend. Circ. Mat. Palermo, Rocky Mt. J. Math.