Elie Studnia
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Education

Since Sep. 2021:	PhD student at Université Paris Cité (IMJ-PRG), under the supervision of Prof. Loïc Merel : *About the Frey-Mazur Conjecture*, (expected defence date Sept. 2024)
2018–2020 :	Master's degree in Pure Mathematics (Sorbonne Université) Master's thesis supervised by Prof. Loïc Merel: *The Chabauty-Kim method for modular curves, after Dogra-Le Fourn*
2018–2019 :	Master's degree, MVA (ENS Paris-Saclay): Computer vision, deep learning, topological data analysis...
2016–2021 :	Student at the École Normale Supérieure (Ulm) : Bachelor's thesis (in French) : *Towards the Weil conjectures*, with C. Gachet, Y. Qin, supervised by Cyril Demarche
2014–2016 :	"Classe préparatoire" MPSI-MP (Louis-le-Grand, Paris)

Other research experience

Mar. 2020 :	Project group in Arizona Winter School (Nonabelian Chabauty), Project assistant: L. Alexander Betts
Apr.–Sep. 2019 :	Research internship at Atos MVA Master's thesis : *Graph Neural Networks and Cybersecurity Applications*
Feb.–Jun. 2018 :	Research internship at UC Berkeley, supervised by Maciej Zworski,

Publications

On obstructions to the Euler system method for Rankin-Selberg convolutions, preprint arXiv:2401.17769

Selmer equations for the thrice-punctured line in depth two, with A. J. Best, L. A. Betts, T. Kumpitsch, M. Lüdtke, A. W. McAndrew, L. Qian and Y. Xu, *Math. Comp.* published electronically 2023.
Continuation of an AWS group project.

Quantum Ergodicity for pseudo-Laplacians, *J. Spectr. Theory 11 (2021), no. 4, pp. 1599–1626.*
Results obtained during the Berkeley internship.

Selected talks

Research talks

Dec. 2023 : *(Anti-)symplectic congruences of elliptic curves modulo 7*
(Contributed talk at *Modular Curves and their Arithmetic*, Warwick)

Working groups

Sep. 2023 : P*roof of Kolyvagin's theorem*
(online Euler Systems Seminar, organized by A. Sheth)

Mar. 2023 : *Constructing the p-adic action of the motivic cohomology group on the cohomology of Bianchi varieties, after Venkatesh*
(in French, in two parts – working group on Venkatesh's conjectures)

Jan. 2022 : *The Pila-Zannier strategy for the André-Oort Conjecture : the product of two modular curves, after Pila* (in French, in two parts, with H. Liu – working group on the André-Oort Conjecture)

Nov. 2020 : *The uniformity bound follows from a height inequality in the universal abelian variety, after Dimitrov-Habegger-Gao,*
(in French ; working groups on Rational points and uniformity)

Teaching/Service/Outreach

Oct. 2022, 2023 : Volunteer for the "fête de la science" : organization of mathematical activities in primary school classrooms.

Since 2022: Co-organizer of the "Bourbakette" (weekly seminar for pure mathematics PhD students at Université Paris Cité)

Since 2021: Teaching assistant/Tutor at Université Paris Cité (all in French)
- Spring 2024: Probability (L2 Math)
- Fall 2023 : Algebra (M1 Math-Info-Crypto)
- Fall 2022 : Algorithms and programs (L2 Math), tutoring (L1-L3 Math)
- Spring 2022 : Elementary algebra and analysis (L1 Info), tutoring (L1-L3 Math)

Since 2021 : Volunteer for the French Mathematical Olympiad organization team : lecturing, tutoring, making problem sheets, grading…

2016–2018 : Interrogator for weekly mock oral exams ("colles") for undergraduates in Lycée Louis-le-Grand, Paris.

Awards

2017, 2018 : Second prize for at the SMF Junior contest
2016 : First place at the ENS entrance competitive exam
2014 : Second prize at the Concours Général of Mathematics
2014 : IMO Bronze Medal