Justin Trias
Curriculum vitæ

School of Mathematics, UEA
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Employment

2024–2025 **Senior Research Associate**, *University of East Anglia (UEA)*, Norwich
Co-Investigator on the EPSRC grant mentioned below.

2021–2023 **Research Associate**, *Imperial College*, London
Postdoctoral researcher, working with David Helm.

2019–2021 **Senior Research Associate**, *UEA*, Norwich
Postdoctoral researcher, working with Shaun Stevens.

Educational background

2015–2019 **PhD**, *Sorbonne Université (formerly UPMC)*, ℓ-modular theta correspondence
Done under the supervision of Alberto Mínguez. Additional tasks including science mediation the first year, and teaching the years after. Financed by the doctoral school of Paris.

2013–2015 **Master**, *UPMC*, Fundamental mathematics
Held in September 2015. Master thesis done under the supervision of Benoît Stroh.

Master 2nd year LOPHISS, *Paris Diderot*, Logic, Philosophy, History, Sociology of Sciences
In parallel to the master of mathematics.

2012–2013 **Agregation of mathematics**, *ENS Cachan*
Competitive examination to become teacher. Accepted and ranked 82nd.

Research grant

2022 **EPSRC Research Grant EP/V061739/1**, *Local theta correspondence: a new study through the theories of types and l-modular representations*, Funded Value: £417 076
Research Co-Investigator on this grant, Shaun Stevens being the Principal Investigator of this project. It includes the organisation of a conference and a workshop, as well as the creation of an online platform about the theta correspondence.

Dissertation

2019 **Doctoral thesis: ℓ-modular theta correpondence**
Done under the supervision of Alberto Mínguez. Defended in October 2019.

Memoirs and research trainings

2015 **Master's Thesis: number theory**, *UPMC*, Paris
Thesis done under the supervision of Benoît Stroh studying a paper of Henri Darmon about the modularity of fibres of certain rigid local systems.

2012 **Research training: theoretical physics**, *IPhT*, CEA Saclay
I worked on quantum chaos under the advisement of Stéphane Nonnenmacher.

2011 **Research training: shape optimisation**, *CMLA*, ENS Cachan
Initiation to research in mathematics with a part time work over 6 months supervised by Alain Trouvé.

Research papers

2023 **Towards a theta correspondence in families for type II dual pairs**, *with Gil Moss*, submitted
Formulating and proving a theta correspondence in families for type II dual pairs.

2022 **Whittaker functionals and contragredient in characteristic not** p, *with Nadir Matringe*, to appear in Mathematics Research Letters
Generalisation to ℓ-modular representations of the work of François Rodier on unicity of Whittaker models for reductive groups over a p-adic field.

2021 **Universal Weil Module**, Pacific Journal of Mathematics, Vol. 323 (2023), No. 2, 359-399
Looking at Weil modules in families with coefficients over minimal rings.

2020 **Correspondance thêta locale ℓ-modulaire I : groupe métaplectique, représentation de Weil et Θ-lift**, submitted
Generalising the first part of my thesis work, with some improvements involving extension of scalars for coefficient fields.

Research in preparation

2024 **ℓ-modular local theta correspondences between cuspidal representations**, *with Jia-Jun Ma, Hung Yean Loke and Shaun Stevens*
Explicit theta correspondence between cuspidal representations in the modular setting using the theory of types.

2024 **ℓ-modular local theta correspondence II: dual pairs of type I and banal correspondence for commutative dual pairs**
Second half of my thesis work.

Talks

Mars 2024 **En direction d'une correspondance thêta en familles pour les paires duales de type II (avec Gil Moss)**, *"Algebra Network" meeting*, CIRM, Université Aix-Marseille

Jan. 2024 **Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *Research Seminar*, Department of Mathematics and Statistics, University of Maine

Jan. 2024 **Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *Rep. Theory and Number Theory Seminar*, Department of Mathematics, University of Utah

Jan. 2024 **Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *AMS Special Session on Theta Correspondence*, Joint Mathematics Meetings, San Francisco

Nov. 2023 **En direction d'une correspondance thêta en familles pour les paires duales de type II (avec Gil Moss)**, *Séminaire d'Algèbre et Géométrie*, Laboratoire de mathématique de Versailles, Université de Versailles Saint-Quentin-en-Yvelines

Jun. 2023 **Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *Pure Maths Seminar*, University of East Anglia, Norwich

Mar. 2023 **Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *Number Theory Seminar*, School of Mathematics, The University of Sheffield

Feb. 2023 **En direction d'une correspondance thêta en familles pour les paires duales de type II (avec Gil Moss)**, *Séminaire Représentations des Groupes Réductifs*, Institut de Mathématiques de Marseille, Université Aix-Marseille

Jun. 2022 **En direction d'une correspondance thêta en familles pour les paires duales de type II (avec Gil Moss)**, *Séminaire Arithmétique*, Laboratoire Paul Painlevé, Université de Lille

Jun. 2022 **Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *Representation Theory and Automorphic Forms seminar*, University of Vienna

Jun. 2022 **Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *London number theory seminar*, King's College London

Jun. 2022	**Lecture series: Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *Local team seminar*, Imperial College London
Apr. 2022	**Towards a theta correspondence in families for type II dual pairs (with Gil Moss)**, *Workshop: minimal representations and theta correpondence*, Erwin Schrödinger International Institute for Mathematical Physics, Vienna
Feb. 2022	**Correspondance thêta en familles pour les paires de type II (avec Gil Moss)**, *Séminaire Groupes, Algèbre et Géométire*, Laboratoire de Math. et Applications, Université de Poitiers
Mar. 2021	**Towards an integral local theta correspondence**, *Representation Theory and Number Theory Seminar*, Department of Mathematics, University of Utah
Feb. 2021	**Towards an integral local theta correspondence**, *Number Theory Seminar*, Department of Pure Mathematics and Mathematical Statistics, University of Cambridge
Nov. 2019	**ℓ-modular theta correspondence**, *Pure Maths Seminar*, University of East Anglia, Norwich
Jul. 2019	**Correspondance thêta ℓ-modulaire**, *Séminaire d'Algèbre et Géométrie*, Laboratoire de mathématique de Versailles, Université de Versailles Saint-Quentin-en-Yvelines
Jun. 2019	**Correspondance thêta ℓ-modulaire**, *Séminaire groupes réductifs et formes automorphes*, Séminaire d'équipe de l'IMJ-PRG, Sorbonne Université
Mar. 2019	**ℓ-modular theta correspondence**, *Number theory seminar*, Faculty of mathematics, University of Vienna

▬▬▬ Teaching duties and outreach

2022–2023	**Lecturing**, *Masters of Science*, Imperial College, London Elliptic Curves course for masters students.
2022–2023	**Tutoring**, *Year 1*, Imperial College, London Running two Year 1 tutorial groups over the whole year.
2020–2021	**Lecturing**, *Algebra II*, UEA, Norwich Ring theory for second year students.
2018–2019	**Tutoring**, *Sorbonne Université (SU)*, Paris I did oral examinations in differential calculus for last year bachelor students, as well as tutorials in algebra.
Dec. 2018	**Lecturing**, *Topology and differential calculus*, African Institute for Mathematical Sciences (AIMS), M'bour (Senegal) Thanks to a joint program between SU and the Senegal-based centre of AIMS, I had the opportunity to give a 15-lecture master's course in Africa as part of my teaching duties.
2017–2018	**Tutoring**, *Algebra: group theory*, SU, Paris Tutorials as well as oral examinations for final year bachelor students.
2016–2017	**Tutoring**, UPMC (now SU), Paris I did the tutorials for second year bachelor students in "Sequences, series and integrals" as well as lecture-tutorials on the software Mathematica for first years students.
2015–2016	**Science mediator**, Cité des Sciences, Paris My doctoral contract allowed me to have this experience in one of the big science museum of Paris, and even of France. It consisted in helping prepare scientific outreach activities and to present them, in front of schools as well as in public.

▬▬▬ Mathematical life

2020–2021	**Pure Maths Seminar**, *UEA* Organised in collaboration with V. Aslanyan and K. Hristova.
2016–2018	**Séminaire des thésards**, *IMJ-PRG* This seminar was about general mathematics, and giving an opportunity to PhD students to have a first talk in a kindly atmosphere. I was organising it with other PhD students.

2016–2018 **Rencontres masters-doctorants**, *IMJ-PRG*
Bi-annual reunion financed by the university and the IMJ-PRG, I co-initiated. Friendly moment for PhD and master students to meet and chat, involving short research talks followed up with a drink.

2016–2017 **Séminaire Aromaths**, *UPMC*, Paris
I was part of the organising team of this seminar dedicated to bachelor students. I help them as much as I can today, as I have got other responisiblities.

Language skills

French	Mother tongue
English	Fluent
Spanish	Good level
Chinese	Studied in high school, succeeding in the final oral examination