

Allan MERINO

Curriculum Vitae

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Personal Data

Date/Place of birth: **08/19/1990, Briey, Lorraine, France.**

Nationality: **French.**

Marital status: **Married.**

Employment History

July 2021 – Present **Postdoctoral Fellow**, *University of Ottawa*, Supervisor: Hadi Salmasian.

April 2018 – April 2021 **Research Fellow**, *National University of Singapore*, Supervisor: Hung Yean Loke.

September 2016 – March 2018 **ATER (Teaching and Research Assistant)**, *Polytech (Engineering School), Nancy.*

Education

October 2013 – December 2017 **PhD in Pure Mathematics**, *University of Lorraine, Metz.*

Title, *Characters of Unitary Highest Weight Representations via Howe Correspondence and Rossmann-Duflo-Vergne formula.*

Advisors, *Angela Pasquale (University of Lorraine) and Tomasz Przebinda (University of Oklahoma).*

Referees, *Hung Yean Loke (National University of Singapore) and Hadi Salmasian (University of Ottawa).*

2011 – 2013 **MSc in Pure Mathematics**, *University of Lorraine, Metz.*

Master's Thesis, *advisor: Angela Pasquale, A new construction of the Weil representation.*

2008 – 2011 **BSc in Mathematics**, *University Paul Verlaine, Metz.*

Research Activities

Research Interests Representation theory of real reductive groups, Character Theory, Howe Correspondence, Non Commutative Harmonic Analysis, Lie supergroups, Character varieties

- Publications
- Characters of Unitary Highest Weight Representations via Howe Correspondence and Rossmann-Duflo-Vergne formula, **PhD thesis** .
 - Characters of some unitary highest weight representations via the theta correspondence, **Journal of Functional Analysis**, Volume 279, Issue 8, November 2020 .
 - Transfer of characters in the theta correspondence with one compact member, **Journal of Lie Theory**, 2020, no. 4, 997-1026 .
 - Dual pairs in the Pin-group and duality for the corresponding spinorial representation, joint work with C. Guérin and G. Liu, **Algebras and Representation Theory**, Volume 24, Issue 6, December 2021 .
 - Characters of irreducible unitary representations of $U(n, n + 1)$ via double lifting from $U(1)$, **Representation Theory** 26 (2022), 325-369 .
 - Transfer of characters for discrete series representations of the unitary groups in the equal rank case via the Cauchy–Harish-Chandra integral, to appear in **International Mathematics Research Notices** .
- Preprints
- Dual pairs in an orthosymplectic Lie superalgebra, joint work with Hadi Salmasian .

Teaching Experience

- Winter 2022 **University of Ottawa, MAT2525A**, Undergraduate course, Introduction à l'analyse réelle.
- Winter 2020 **National University of Singapore, Advanced Graduate Course**.
Sole lecturer - Character of quasi-simple representations
This course was aimed to graduate students. Its goal was to explain Harish-Chandra's character theory, some of the interesting well-known results on characters and suggest some open problems for the students to work on. I encouraged the students to give some talks throughout the semester. This was a 12 week class, two hours twice a week.
- 2016- March **Polytech Nancy (Engineering School)**.
2018 Teaching assistant for first and second year students, in Calculus (2 semesters), ODE & Fourier Analysis (2 semesters), Linear Algebra (2 semesters).
- 2014-2016 **University of Lorraine (Metz)**.
Teaching assistant in a variety of courses:
 - Exercise sessions in Statistics for first year students in Economy, second year engineering students and master students in Mathematics.
 - Sole lecturer: Introduction to Latex for second year students in Mathematics.
 - Oral Examinations for undergraduate students (Linear Algebra, Bilinear Algebra, Group Theory, Calculus, ODE, Probability, Differential Calculus, Complex Analysis, Measure Theory).
 - Refresher course in Group and Ring theory and Probability for third year students (20 hours).

Seminar and Conference Talks

- September 2014 **Lie Superalgebras and their Representations**, *Graduate Student Seminar*, University of Lorraine, France.
- April 2015 **Representations of the Symmetric Group and Schur Duality**, *Graduate Student Seminar*, University of Lorraine, France.
- November 2015 **Howe's Duality Theorem: a Proof in the Archimedean Case**, *Graduate Student Seminar*, University of Lorraine, France.

- June 2016 **Howe's Duality and Characters**, *Graduate Student Seminar*, University of Strasbourg, France.
- November 2016 **Nilpotent Gelfand Pairs**, *Graduate Student Seminar*, University of Lorraine, France.
- November 2017 **Characters of representations of non-compact reductive Lie groups via the theta correspondence**, *Workshop SL2R*, University of Lorraine, Nancy, France
- May 2018 **Characters of representations of non-compact reductive Lie groups via the theta correspondence**, *Representation Theory & Number Theory seminar*, National University of Singapore, Singapore.
- August - September 2018 **Characters in the theta correspondence (4 parts)**, *Representation theory & Number theory seminar*, National University of Singapore, Singapore.
- November 2018 **Invariant Theory and Lie Supergroups (2 parts)**, *Representation Theory & Number Theory seminar*, National University of Singapore, Singapore.
- May 2019 **Duality for the Pin Representation**, *Colloquium*, University of Oklahoma, USA.
- October 2020 **Transfer of characters for discrete series representations in the equal rank case via the Cauchy-Harish-Chandra integral**, *LieGA Seminar*, Metz, France.
- October 2020 **Transfer of characters in the theta correspondence**, *Algebra seminar*, Technion, Israel Institute of Technology, Israel.
- December 2020 **Transfer of characters for discrete series representations in the equal rank case via the Cauchy-Harish-Chandra integral**, *Ottawa-Carleton joint Algebra seminar*, Canada.
- March 2021 **Transfer of characters for discrete series representations in the equal rank case via the Cauchy-Harish-Chandra integral (2 parts)**, *Representation Theory & Number Theory seminar*, National University of Singapore, Singapore.
- October 2021 **Transfer of characters in the theta correspondence**, *Algebra & Geometry seminar*, Queen's University, Ontario, Canada.
- October 2021 **Howe duality and characters (2 talks)**, *Harmonic Analysis seminar*, Louisiana State University, USA.
- October 2021 **Schur Duality, Pin Duality and Lie superalgebras**, *Ottawa-Carleton joint Algebra seminar*, University of Ottawa, Ontario, Canada.
- March 2022 **Character Varieties of classical groups**, *Ottawa-Carleton joint Algebra seminar*, University of Ottawa, Ontario, Canada.

Conferences Attended

- March 2015 **Analysis and geometry of resonances**, *CIRM, Marseille*, France (invited).
- September 2016 **Seminar Sophus Lie**, *Erlangen*, Germany (invited).
- January 2017 **AMS-MMA Joint mathematics meetings**, *Atlanta*, USA (invited).
- June 2017 **Representation theory as the crossroads of modern mathematics**, *In honor of Alexander Kirillov*, Reims, France.
- December 2017 **Fifth Tunisian-Japanese conference**, *Geometric and harmonic analysis on homogeneous spaces and applications*, Mahdia, Tunisia.

December 2018 **On the Langlands program: endoscopy and beyond**, *Institute for Mathematical Sciences*, Singapore.
- January 2019

Special Activities

- **Referee activities for Journal of Pure and Applied Algebra.**
- 2021-2022 **Organizer of a reading group on Howe duality for Lie superalgebras**, *University of Ottawa*.
- June 2016 **Snowbird, Utah, USA**, *Participation to the 2016 Mathematics Research Communities Workshop “Lie Group Representations, Discretization, and Gelfand Pairs”, (NSF Funded Research Program)*.
- May 2019 **University of Oklahoma**, *Visiting Tomasz Przebinda, 3 weeks*.

Service

- 2020 Jury for the Singapore Science & Engineering Fair (SSEF)
- 2013–2016 Organizer of the Graduate Student Seminar, Institut Élie Cartan de Lorraine, Metz
- 2014–2017 Member of the Mathematics Department Council, University of Lorraine (Metz)
- 2014–2016 Involved in the annual conference MATH.en.JEANS. & proposition of research projects for high school students

Others

Languages French (native), English (fluent), Spanish (good knowledge)