

Allan Merino | Curriculum Vitae

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Employment History

- **Postdoctoral Fellow** **July 2021 - May 2023**
University of Ottawa, Canada
Supervisor: **Hadi Salmasian**
- **Research Fellow** **April 2018 - April 2021**
National University of Singapore
Supervisor: **Hung Yean Loke**
- **Teaching and Research Assistant** **September 2016 – March 2018**
Polytech Nancy (Engineering School), France

Education

- **PhD in Pure Mathematics** **October 2013 – December 2017**
University of Lorraine, France
 - Title: *Characters of Unitary Highest Weight Representations via Howe Correspondence and Rossmann-Duflo-Vergne formula*
 - Supervisors: **Angela Pasquale** and **Tomasz Przebinda**
- **MSc in Pure Mathematics** **2011 – 2013**
University of Lorraine, France
 - Title: *A new construction of the Weil representation*
 - Supervisor: **Angela Pasquale**
- **BSc in Mathematics** **2008 – 2011**
University Paul Verlaine, France

Research Activities

Research Interests

Representation theory of real reductive groups, Character theory, Howe correspondence, Lie superalgebras and 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

- Classification and double commutant property for dual pairs in an orthosymplectic Lie supergroup (with Hadi Salmasian, [ArXiv](#))
- Howe duality for the dual pair $(\mathrm{SpO}(2n|1), \mathfrak{osp}(2k|2l))$ (with Hadi Salmasian)

Teaching Experience

- **MAT 1741 - Introduction to linear algebra** **Winter 2023**
University of Ottawa, Canada *Undergraduate course*
- **MAT 2742 - Applied linear algebra** **Fall 2022**
University of Ottawa, Canada *Undergraduate course*
 - Sole Lecturer - Applied linear algebra (in French)
 - In-person course with 70 students. Three hours of lecture per week, during 12 weeks
 - Developed a syllabus, writing homeworks, midterms and final examinations
 - Lecture notes: 75 pages
- **MAT 2525 - Elementary Real Analysis** **Winter 2022**
University of Ottawa *Undergraduate course*
 - Sole Lecturer - Elementary Real Analysis (in French)
 - Online Course with 100 students. Three hours of lecture per week, during 12 weeks
 - Developed a syllabus, writing homeworks, midterms and final examinations
 - Lecture notes: 90 pages & a 30 pages long file containing the correction of exercices
 - Teaching evaluation: 4.57/5 (Evaluation made by 30 students)
- **MA 6292 - Characters of quasi-simple representations** **Winter 2020**
National University of Singapore *Advances Graduate Course*
 - Sole lecturer - Character of quasi-simple representations
 - Create a course on characters for graduate students containing open problems to work on in the future
 - Final exam: one hour individual oral presentation
 - Lecture notes: 100 pages
- **Teaching Assistant** **2016 - 2018**
Polytech Nancy (Engineering School), France
 - Teaching assistant for first and second year students, in Calculus (2 semesters), ODE & Fourier Analysis (2 semesters), Linear Algebra (2 semesters)

2014-2016

Teaching Assistant

○ *University of Lorraine, France*

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

Paderborn, Germany

October 2022

○ *Geometric and Harmonic Analysis seminar (Online)*

- Classification and double commutant property for dual pairs in an orthosymplectic Lie supergroup

Prague, Czech Republic

October 2022

○ *Seminar on Harmonic Analysis (Online)*

- Classification and double commutant property for dual pairs in an orthosymplectic Lie supergroup

University of Ottawa, Canada

August 2022

○ *Workshop on Symmetric Spaces, Their Generalizations, and Special Functions*

- Classification and double commutant property for dual pairs in an orthosymplectic Lie supergroup

IMS, Singapore

July 2022

○ *Representations and Characters: Revisiting the Works of Harish-Chandra and André Weil*

- Dual pairs in an Orthosymplectic Lie supergroup, double commutant theorem and duality

University of Ottawa, Canada

March 2022

○ *Ottawa-Carleton joint Algebra seminar*

- Character Varieties of classical groups

University of Ottawa, Canada

October 2021

○ *Ottawa-Carleton joint Algebra seminar*

- Schur Duality, Pin Duality and Lie superalgebras

Louisiana State University, USA

October 2021

○ *Harmonic Analysis seminar (Online)*

- Howe duality and characters (2 talks)

Queen's University, Canada

October 2021

○ *Algebra & Geometry seminar (Online)*

- Transfer of characters in the theta correspondence

National University of Singapore, Singapore

March 2021

○ *Representation Theory & Number Theory seminar*

- Transfer of characters for discrete series representations in the equal rank case via the Cauchy-Harish-Chandra integral (2 parts)

University of Ottawa, Canada

December 2020

○ *Ottawa-Carleton joint Algebra seminar (Online)*

- Transfer of characters for discrete series representations in the equal rank case via the Cauchy-Harish-Chandra integral

- **Technion (Israel Institute of Technology), Israel** **October 2020**
Algebra seminar (Online)
 - Transfer of characters in the theta correspondence
- **University of Lorraine, France** **October 2020**
LieGA Seminar (Online)
 - Transfer of characters for discrete series representations in the equal rank case via the Cauchy-Harish-Chandra integral
- **University of Oklahoma, USA** **October 2019**
Colloquium
 - Duality for the Pin Representation
- **National University of Singapore, Singapore** **November 2018**
Representation Theory & Number Theory seminar
 - Invariant Theory and Lie Supergroups (2 parts)
- **National University of Singapore, Singapore** **September 2018**
Representation theory & Number theory seminar
 - Characters in the theta correspondence (4 parts)
- **National University of Singapore, Singapore** **May 2018**
Representation Theory & Number Theory seminar
 - Characters of representations of non-compact reductive Lie groups via the theta correspondence
- **University of Lorraine, France** **November 2017**
Workshop SL_2R
 - Characters of representations of non-compact reductive Lie groups via the theta correspondence
- **University of Lorraine, France** **November 2016**
Graduate Student Seminar
 - Nilpotent Gelfand Pairs
- **University of Lorraine, France** **November 2015**
Graduate Student Seminar
 - Howe's Duality Theorem: a Proof in the Archimedean Case
- **University of Lorraine, France** **April 2015**
Graduate Student Seminar
 - Representations of the Symmetric Group, Schur Duality and Howe Duality
- **University of Lorraine, France** **September 2014**
Graduate Student Seminar
 - Lie Superalgebras and their Representations

Conferences Attended

- **IMS, Singapore** **December 2018 - January 2019**
On the Langlands program: endoscopy and beyond
- **Mahdia, Tunisia** **December 2017**
Fifth Tunisian-Japanese conference *(Invited)*
- **University of Reims, France** **June 2017**
Conference in honor of Alexander Kirillov *(invited)*

- **Atlanta, USA** **January 2017**
(Invited)
- *AMS-MMA Joint mathematics meetings*
- **University of Erlangen-Nuremberg, Germany** **September 2016**
(Invited)
- *Seminar Sophus Lie*
- **CIRM, Marseille, France** **March 2015**
(Invited)
- *Analysis and geometry of resonances*

Service

- **Referee activities** **2020 – Present**
- *Journal of Pure and Applied Algebra, International Mathematics Research Notices*
- **University of Ottawa** **2021-2022**
- *Organizer of a reading group on Howe duality for Lie superalgebras*
- **Singapore** **2020**
- *Jury for the Singapore Science & Engineering Fair (SSEF)*
- **University of Lorraine (Metz)** **2014–2017**
- *Member of the Mathematics Department Council, University of Lorraine*
- **MATh.en.JEANS** **2014–2016**
- *Proposition of research projects for high school students (France)*
- **Institut Élie Cartan de Lorraine, Metz** **2013–2016**
- *Organizer of the Graduate Student Seminar*

Languages

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

Recommendation Letters

Research

- **Howe Roger** (Yale University and Texas A&M) ✉ ☐
- **Olafsson Gestur** (Louisiana State University) ✉ ☐
- **Aubert Anne-Marie** (Institut de Mathématiques de Jussieu-Paris Rive Gauche) ✉ ☐
- **Gan Wee Teck** (National University of Singapore) ✉ ☐
- **Pasquale Angela** (Université de Lorraine) ✉ ☐
- **Przebinda Tomasz** (University of Oklahoma) ✉ ☐
- **Salmasian Hadi** (University of Ottawa) ✉ ☐

Teaching

- **Nevins Monica** (University of Ottawa) ✉ ☐
- **Desjardins Steve** (University of Ottawa) ✉ ☐
- **Mehdi Salah** (Université de Lorraine) ✉ ☐