

# SARAH DIJOLS

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## CURRENT POSITION

From January 2022 to August 2024 Postdoctoral researcher at the University of Calgary, and the University of British Columbia, under the supervision of Clifton Cunningham and Julia Gordon

From September 2021 to December 2021 Postdoctoral researcher at MPIM, Bonn

From December 2018 to July 2021 Postdoctoral researcher at Yau Center, Tsinghua University, Beijing, Mentor : Bin Xu

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## EDUCATION

*From September 2014 to July 2018* PhD Thesis at the University of Aix-Marseille, under the supervision of Volker Heiermann.

*2013-2014*

Second year of Master, Fundamental Mathematics, Algebra and Geometry, UPMC, with honours

*Master Thesis title* : « L functions and Theta series » under the supervision of Jens Funke and Nicolas Bergeron.

*2011-2013*

Master Economics and Public Policy, PhD track, Sciences Po Paris and Ecole Polytechnique  
*Master Thesis title* : « Prices' dynamics : could covariances highlight the financialization of commodities? » under the supervision of Nicolas Coeurdacier. First year Master in Fundamental Mathematics, Strasbourg University and UPMC

*2007-2010*

Double degree

Bachelor at Sciences Po Paris

Bachelor in Mathematics, Pierre et Marie Curie University with highest honours

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## PUBLICATIONS AND PREPRINTS

*Articles*

**Symplectic models for unitary groups**, 34p, with Dipendra Prasad, *Trans. Amer. Math. Soc.*, December 2018,

<https://www.ams.org/journals/tran/2019-372-03/S0002-9947-2018-07651-6/>

**The generalized injectivity conjecture**, 95p, *Bulletin de la SMF* 2022, <https://smf.emath.fr/publications/la-conjecture-dinjectivite-generalisee>.

**The completed L-function for modular forms on  $G_2$** , with Fatma Cicek, Giuliana Davidoff, Trajan Hammonds, Aaron Pollack, Manami Roy, 25p, *Math Zeit*, 2022, <https://link.springer.com/article/10.1007/s00209-022-03067-8>.

*Pre-prints :*

**Projection of root systems**, 2019, to be resubmitted.

**Parabolically induced representations of  $G_2/SO_4$ , I**, submitted

**Period-Index in top cohomology over semi-global fields** with Raman Parimala, Sujatha Ramdorai, and Charlotte Ure, available upon request.

*Work in progress :*

**Generic representations and ABV-packets for  $p$ -adic groups**, with Clifton Cunningham, Andrew Fiori, and Qing Zhang

**Local newforms for  $SO(2n + 1)$** , with Didier Lesesvre

**Parabolically induced representations of  $G_2/SO_4$ , II**, with Nadir Matringe

## TEACHING

Level	Courses	In charge
L3	Fourier Analysis for engineers ( $2 \times 27h$ , 36h)	Mélot/Gomez
L3	Integration (36h)	Guillaume Rond
L3	Algebra and Geometry (10h, 36h)	Heiermann/Kohel
L2	Statistical tools for environmental sciences (28h)	Franck Torre
L1	Linear Algebra, Maths/info majors (24h)	Battesti Françoise
L1	Analysis, Maths/info majors (20h)	Battesti Françoise
L1	Linear Algebra for social scientists (in charge of the course) (30h)	Sarah Dijols
L1	Linear Algebra (54h), 2019, Tsinghua University	Yang Yilong
L1	Tutorials in Algebra and Analysis (48h) , UPMC	Programme <i>Cap en Fac</i>
L1	Integral calculus with applications to physics, Math 101, Spring 2022, UBC	Sarah Dijols
L1	Differential calculus (two classes), Math 249, Fall 2022, U of Calgary	Sarah Dijols
L1	Differential calculus, UBC, Fall 2023	
Doctoral level	Teaching assistant MSRI Summer school 2024 on Kozsul duality	

The courses described in the first half of the table were during my years as a PhD student, and were tutorials with groups ranging from 10 to 50 students

Supervision of some introductory research projects for two undergraduates students in 2022-2023 (details available upon request) and organization of an undergraduates research seminar during the summer 2023 at the University of Calgary.

## TALKS IN INTERNATIONAL CONFERENCES

*Recent progress on the search for representations of  $G_2$  distinguished by  $SO_4$* , JMM Sessional, Omaha, October 2023

*Perspective géométrique sur la CLL*, Summer School "A la découverte des correspondances de Langlands locales", Amiens, August 2023

*Recent progress on the search for representations of  $G_2$  distinguished by  $SO_4$* , Canadian Math. Society meeting, Ottawa, June 2023

*Parabolically induced representations of  $p$ -adic  $G_2$  distinguished by  $SO_4$* , JMM, Boston, Women in Automorphic Forms, January 2023.

*Parabolically induced representations of  $p$ -adic  $G_2$  distinguished by  $SO_4$* , CLAP conference, August 2022, Bonn.

*Induced representations of  $p$ -adic  $G_2$  distinguished by  $SO_4$* , Jeunes chercheurs et jeunes chercheuses en théorie des nombres (JC2A), Paris, August 2021.

*The completed  $L$  function for  $G_2$* , Zhejiang University, Symposium Number Theory, May 2021.

*The Generalized Injectivity conjecture*, Bangalore ICTS, March 2019.

*Symplectic Models for unitary groups*, Varanasi, TIMC AMS conference 2016; and Workshop on Representation Theory of Reductive Groups Over Local Fields, Weizmann Institute of Science, June 2017

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## TALKS IN SEMINARS

*R-groups and extensions of  $p$ -adic groups*, September 2022, Calgary.

*Proof of the basics properties of intertwining operators*, d'après Moeglin-Waldspurger, July 2022, Research seminar on Intertwining operators.

*Induced representations of  $p$ -adic  $G_2$  distinguished by  $SO_4$* , Poitiers and Caen Number Theory Seminars, December 2021.

*Induced representations of  $p$ -adic  $G_2$  distinguished by  $SO_4$* , UEA Pure Maths Seminar, and MPIM Number theory seminar, June and September 2021.

*Extensions of  $p$ -adic groups*, Tsinghua, Working Seminar, June 2021.

*Representations of  $G_2$  distinguished by  $SO_4$* , Voganish Seminar, August 2020.

I regularly attend and have given few talks in the Voganish Seminar, with Calgary, Beijing, and Poitiers. Two talks at the Voganish Project meeting group at BIRS, Banff, Summer 2019.

Two talks on Kottwitz, Harmonic Analysis on Reductive  $p$ -adic Groups and Lie Algebras (Spring seminar, Beida, Beijing); three talks on the introduction to endoscopy (autumn seminar at Beida Beijing)

*The Generalized Injectivity conjecture*, presented at Max Planck Institute and Gottingen, June 2018; at University of Calgary, Tsinghua University (Winter 2018), and ICTP, Trieste.

Formule des traces relative appliquée à la démonstration d'un résultat de Waldspurger, Seminar RGR, I2M Marseille

Symplectic Models for unitary groups, Varanasi, December 2016

Seminar Algebra and Geometry, Versailles, May 2017

Seminar Poitiers, May 2017

Working group on the Trace formula, organized by Farrell Brumley at Jussieu :

Décembre 2015, Le côté spectral de la Formule des Traces pour  $GL_2$

Mars 2016, Formule des traces relative et un résultat de Waldspurger

PhD students seminars :

Introduction à la théorie des représentations de groupes réductifs : représentations distinguées et modèles :

Grenoble, février 2017

Paris 7, mai 2017

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## EVENTS ORGANIZED, VISITS

Organizing jointly with Clifton Cunningham a two weeks summer school on Kozsul duality in representation theory, MSRI, Summer 2024

### *Academic visits*

Calgary University, September-November 2018

Max Planck Institute, Bonn, May-June 2018

Tata Institute of Fundamental Research, 15th of December-15th of January 2017

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## ADDITIONAL ACTIVITIES

### **Popularization**

Participation in the SMUC Research Night at the University of Calgary in 2022 and Colloquium talk, "*On quaternions and octonions*", March 2023.

Hippocampe program Spring 2015 (a one week introduction to mathematical research for High School students); participation in Piday Mucem in 2015 and « Fête de la Science »; Maths games with High School students at CIRM library.

Participation in the PEPS-Egalité program (correspondance de Langlands) organized by Anne-Marie Aubert in April 2015. Poster presentation for a public of High School students.

Instructor in the workshop Math C2+ organized by the Polytechnique School to encourage High School female students from Aix-Marseille area to enroll in Sciences Studies.

### **Service**

PhD students representative at the AMU Mathematics-Computer Science Doctoral School, 2015-2018.

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## EXTRACURRICULAR

### **Languages**

French : Mother tongue

English : Fluent

Spanish : Moderate

Mandarin : Learning (HSK3-4)

### **IT Skills (to be refreshed)**

Intermediate : Stata, R, GNU PLOT, OpenOffice, Excel, SageMath

Advanced :  $\text{\LaTeX}$ , PYTHON

## **Personal interests**

Sports : Climbing, Mountaineering and Running

Mathematics, Ecology, Literature, Duduk

I have been a member of the Association Genepi which militates for « opening up » prisons. I was organizing cultural workshops for prisoners twice a month from January 2016 to June 2017. I left this association at the Autumn 2018.