

# Eirini Chavli

## Curriculum Vitae

Institut für Algebra und Zahlentheorie,

Universität Stuttgart,

Pfaffenwaldring 57,

70569 Stuttgart, Germany

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<http://eirinichavli.com>

### Personal Information

BIRTH DATE 23/09/1985 (Athens)

NATIONALITY Greek

FAMILY SITUATION Married, one child (born in 2020)

### Education

Sep 2012–May 2016 **Ph.D. in Pure Mathematics**, Université Paris Diderot  
**Title:** *The Broué-Malle-Rouquier conjecture for the exceptional groups of rank 2*  
**Supervisor:** Ivan Marin  
**Examiners:** P. Etingof, L. Funar  
**Jury:** F. Digne, L. Funar, N. Jacon, G. Malle, I. Marin, G. Pfeiffer

Sep 2011–Jun 2012 **Master 2 de Mathématiques Fondamentales**, Université Paris Diderot

Oct 2007–Aug 2010 **MSc in Pure Mathematics**, University of Athens

Oct 2003–Sep 2007 **Bachelor in Mathematics**, University of Athens

Sep 2000–Jun 2003 **High school diploma**, High school of Glyka Nera, Athens

### Professional Situation

Oct 2020–Oct 2021 **Maternity leave**

Oct 2016–today **Postdoctoral researcher and teaching assistant**, Universität Stuttgart

Sep 2015–Aug 2016 **Temporary lecturer (Attaché Temporaire d’Enseignement et de Recherche)**, Université de Picardie Jules Verne

Jan 2012–Aug 2015 **Teaching assistant**, Université Paris Diderot

Oct 2007–Jun 2010 **Teaching assistant**, University of Athens

### Teaching Activities

2022-2023 **Universität Stuttgart**

“Lineare Algebra und Analytische Geometrie II”, 1st year (Maths)

“Lineare Algebra und Analytische Geometrie I”, 1st year (Maths)

2021–2022 **Universität Stuttgart**

“Höhere Mathematik 3”, 2nd year (Engineering)

“Mathematik 1”, 1st year (Informatics and Software Engineering)

2019–2020 **Universität Stuttgart**

“Höhere Mathematik 3”, 2nd year (Engineering)

“Höhere Mathematik 2”, 1st year (Engineering)

2018–2019 **Universität Stuttgart**

“Lineare Algebra und Analytische Geometrie II”, 1st year (Maths)

“Lineare Algebra und Analytische Geometrie I”, 1st year (Maths)

- 2017–2018 **Universität Stuttgart**  
 “Algebra und Zahlentheorie für das Lehramt”, 2nd year (Maths)  
 “Algebra”, 2nd year (Maths)
- 2016–2017 **Universität Stuttgart**  
 “Höhere Mathematik 3”, 2nd year (Engineering)  
 “Höhere Mathematik 2”, 1st year (Engineering)
- 2015–2016 **Université de Picardie Jules Verne**  
 “Théorie de Galois”, Master 1 (Maths)  
 “Algèbre linéaire II”, 2nd year (Maths)  
 “Topologie”, 2nd year (Maths)  
 “Algèbre linéaire I”, 1st year (Informatics, Maths)  
 “Outils Mathématiques”, 1st year (Informatics)  
 “Probabilités et Statistique”, 1st year (Biology)
- 2014–2015 **Université Paris Diderot**
- 2013–2014 “Algèbre et Analyse élémentaires II”, 1st year (Physics)
- 2012–2013
- 2007 **1st experimental High school in Athens (Gennadios)**  
 Trainee-ship on Algebra
- 2009–2010 **University of Athens**
- 2008–2009 “Basic Algebra”, 2nd year (Maths)
- 2007–2008
- 2004–2010 **Private Tutor on Mathematics**  
 High School students from public and private schools (International Baccalaureate, American College of Greece, Greek-German School)

## Administration Activities

- ★ Teaching assistant at the Universität Stuttgart. This includes:
  - Coordination of students’ registration
  - Distribution of students to working groups
  - Recruitment of tutors
  - Weekly meetings with tutors
  - Coordination of homework correction
  - Organisation of the consultation of the exams (book rooms, print the exams, distribute the students to rooms)
- ★ Co-organizer of the conference “2-day meeting on Computational Lie theory”, <http://eirinichavli.com/computational-lie-theory.html>.
- ★ Jury for the Bachelor thesis “Théorie de Galois et applications” of the students Marthe Brasseur and Thomas Gheerbrant (Université de Versailles–St Quentin, 30-5-2017)
- ★ *Assistant for Tag der Wissenschaften*, Universität Stuttgart.
- ★ *Assistant for the Unitag*, Universität Stuttgart.
- ★ Referee for the peer-reviewed journals: “Journal of Algebra”, “Journal of Symbolic Computation”, “Progress in Mathematics”, “Moscow Mathematical Journal”.

## Research Activities

### Research interests

Hecke algebras, braid groups, finite Coxeter groups, Complex reflection groups, decomposition matrices, Hochschild cohomology, Brauer algebras, Dyck paths, 321-avoiding permutations, Nakayama algebras, representation theory.

### Ph.D. thesis

The BMR freeness conjecture for the exceptional groups of rank 2, Université Paris Diderot, Paris 7, 2016 (available in arXiv: 1608.00834).

### Publications

1. *Universal deformations of the finite quotients of the braid group on 3 strands*  
Journal of Algebra 459 (2016), 238–271
2. *The BMR freeness conjecture for the first two families of the exceptional groups of rank 2*  
Comptes Rendus Mathématique, Académie des Sciences, 355, Ser. 1 (2017), 1–4
3. *The BMR freeness conjecture for the tetrahedral and octahedral family*  
Communications in Algebra 46, no. 1 (2018), 386–464
4. *The BMM symmetrising trace conjecture for groups  $G_4, G_5, G_6, G_7, G_8$*   
Journal of Symbolic Computation 96 (2020), 62–84  
Joint work with Christina Boura, Maria Chlouveraki, and Konstantinos Karvounis
5. *Decomposition matrices for the generic Hecke algebras on 3 strands in characteristic zero*  
Algebras and Representation Theory 23 (2020), 1001–1030
6. *The BMM symmetrising trace conjecture for the exceptional 2-reflection groups of rank 2*  
Journal of Algebra 558, Special issue in honor of Michel Broué (2020), 176–198  
Joint work with Christina Boura and Maria Chlouveraki
7. *The freeness and trace conjectures for parabolic Hecke subalgebras*  
Journal of Pure and Applied Algebra 226. 10 (2022), 107050.  
Joint work with Maria Chlouveraki
8. *Centers of Hecke algebras of complex reflection groups*  
Beiträge zur Algebra und Geometrie/Contributions to Algebra and Geometry (2023), 1–18.  
Joint work with Goetz Pfeiffer
9. *Homological algebra of Nakayama algebras and 321-avoiding permutations*  
arXiv preprint: 2204.13764  
Joint work with Rene Marczinzik

### Programming

- ★ Creation of programs in SAGE and GAP3 (with C. Boura, M. Chlouveraki et K. Karvounis) for the proof of the Broué-Malle-Michel symmetrising trace conjecture for groups  $G_4, G_5, G_6, G_7, G_8$ . The programs are available here: <https://www.eirinichavli.com/BMMsym.html>
- ★ Creation of a program in SAGE (with C. Boura and M. Chlouveraki) for the proof of the Broué-Malle-Michel symmetrising trace conjecture for group  $G_{13}$ . The program is available here: <https://www.eirinichavli.com/BMMsym13.html>
- ★ Creation of a program in GAP3 (with M. Chlouveraki) for the proof of the parabolic freeness conjecture for groups  $G_4, G_5, G_6, G_7, G_8, G_{13}$ . The program is available here: <https://www.eirinichavli.com/parabolic.html>

- ★ Creation of programs in GAP3 (with G. Pfeiffer) for finding a basis for the center of the Hecke algebra associated to groups  $G_4, G_5, G_6, G_7, G_8, G_{12}, G_{13}, G_{22}$ . The program are available here: <https://www.eirinichavli.com/center.html>

### Research visits

- Oct 2018 **Karlsruhe Institute of Technology, Germany**  
Invited for a week by J. Torres
- Oct 2017 **Université de Versailles-Saint-Quentin-en-Yvelines, France**  
Invited for a week by M. Chlouveraki
- Jun 2017 **Université de Versailles-Saint-Quentin-en-Yvelines, France**  
Invited for a week by M. Chlouveraki

### Talks in International Conferences

- 10-3-2023 **Real, Complex, and Symplectic Reflection Groups, Ruhr-Universität Bochum**  
*On generic Hecke algebras*
- 10-1-2023 **Lie Theory in Prato 2023, Monash University and the University of Trento**  
*Complex Hecke algebras are real*
- 30-9-2022 **Representation Theory at the Villa Denis 2022, Technische Universität Kaiserslautern**  
*Nakayama algebras via combinatorics*
- 12-7-2022 **First Workshop of Greek Women in Mathematics, NTUA**  
*The irreducible representations of the braid group on 3 strands*
- 7-7-2022 **Second Congress of Greek Mathematicians, NTUA**  
*Nakayama algebras and 321-avoiding permutations*
- 30-11-2021 **Women in Algebra and Symbolic Computations II, SFB-TRR 195**  
*The center of the generic Hecke algebra*
- 16-5-2021 **Women in Combinatorics and Representation Theory Virtual, UC Riverside**  
*On Hecke algebras*
- 19-9-2019 **GRAP 1, Université de Picardie Jules Verne**  
*Le centre de l'algèbre de Hecke générique pour  $G_4, \dots, G_8$*
- 17-7-2019 **Summer meeting of young researchers in Mathematics, National and Kapodistian University of Athens**  
*On Hecke algebras*
- 28-6-2019 **SWAN 2, Karlsruhe Institute for Technology**  
*Complex reflection groups, braid groups, and Hecke algebras*
- 8-12-2018 **Nikolaus Conference, Lehrstuhl D, Aachen**  
*Two Fundamental Conjectures on the Structure of Hecke Algebras. Part I: The BMR joint talk with Maria Chlouveraki*
- 17-9-2018 **SWAN 1, Universität Stuttgart**  
*Representation theory for the Hecke algebras on 3 strands*
- 21-6-2018 **Workshop on Algebraic Combinatorics, Université de Reims Champagne-Ardenne**  
*Modular representation theory for the generic Hecke algebras on 3 strands*
- 10-11-2017 **Darstellungstheoretage, Katholische Universität Eichstätt–Ingolstadt**  
*Decomposition matrices for the generic Hecke algebras on 3 strands*
- 15-6-2017 **Women in Geometry and Topology, Universität Zürich**  
*Complex braid groups and generic Hecke algebras*

- 3-2-2017 **Colloque Tournant 2017 du GDR TLAG**, Université de Picardie Jules Verne  
*Une classification des représentations irréductibles de  $B_3$*
- 29-8-2016 **Algebraic Combinatorics in Representation Theory**, CIRM, Luminy  
*The BMR freeness conjecture*
- 5-7-2016 **Representation theory in Samos**, University of the Aegean Sea  
*The irreducible representations of  $B_3$  of small dimension*
- 24-2-2016 **Winterbraids VI**, Université de Lille I  
*The irreducible representations of  $B_3$  of dimension at most 5*
- 27-3-2015 **Rencontre de l'ANR ACORT à Paris**, Université de Reims Champagne-Ardenne  
*The irreducible representations of  $B_3$*
- 5-12-2014 **Nikolaus Conference**, Lehrstuhl D, Aachen  
*The BMR Freeness Conjecture: the Tetrahedral and Octahedral Families*
- 17-6-2014 **Summer school**, Institut d'Études Scientifiques de Cargèse  
*Affine Nil-Hecke algebras*
- 9-6-2014 **Young Algebraists' conference**, EPFL  
*The BMR conjecture for the Hecke algebra of the finite quotients of the braid group on  $n$  strands*
- 9-5-2014 **ARTY 2**, Universität Emmy Noether Zentrum, Nuremberg  
*The BMR conjecture for the Hecke algebra of the finite quotients of the braid group on  $n$  strands*

### Talks in Seminars

- 17-2-2023 **Séminaire SPACE Tours**, Université de Tours  
*Le centre de l'algèbre de Hecke générique*
- 14-6-2022 **Oberseminar IAZ**, Universität Stuttgart  
*Nakayama algebras and 321-avoiding permutations*
- 24-5-2022 **Séminaire d'Algèbre-Géométrie**, Université de Versailles - St Quentin  
*Le centre de l'algèbre de Hecke générique*
- 9-5-2022 **Oberseminar Arrangements and Symmetries**, Ruhr Univeristät Bochum  
*Complex Hecke algebras are real*
- 3-3-2022 **Edinburgh Hodges Seminar**, University of Edinburgh  
*The center of the generic Hecke algebra*
- 22-4-2021 **AlBicocca online Seminar**, University of Milan-Bicocca  
*Real properties of generic Hecke algebras*
- 9-9-2020 **The RepNet Virtual Seminar**, International Centre for Mathematical Science  
*Real properties of generic Hecke algebras*
- 5-12-2019 **Algebra, Geometrie und Algorithmischen Methoden**, Universität Tübingen  
*On Hecke algebras: a computational approach*
- 31-10-2019 **Algebra Seminar**, Aristotle University of Thessaloniki  
*Complex reflection groups, braid groups, Hecke algebras*
- 29-3-2019 **Séminaire SPACE Tours**, Université de Tours  
*Le centre de l'algèbre de Hecke générique pour la famille tétraédrale*
- 13-9-2018 **Séminaire de théorie des groupes**, Université de Picardie Jules Verne  
*Les matrices de décomposition des algèbres de Hecke génériques à 3 brins*
- 22-2-2018 **Groupe de travaille d'Algèbre**, Université Littoral Côte d'Opale  
*Sur les conjectures de BMR*

- 23-1-2018 **Séminaire d'Algèbre-Géométrie**, Université de Caen  
*Sur les conjectures de BMR pour les algèbres de Hecke génériques*
- 27-9-2017 **Oberseminar**, Universität Stuttgart  
*Representation theory for the finite quotients of the braid group  $B_3$*
- 30-5-2017 **Séminaire d'Algèbre-Géométrie**, Université de Versailles - St Quentin  
*Les matrices de décomposition des algèbres de Hecke génériques à 3 brins*
- 16-8-2016 **Oberseminar**, Universität Stuttgart  
*The BMR freeness conjecture: recent work and open cases*
- 4-5-2016 **Séminaire de théorie des groupes**, Université de Picardie Jules Verne  
*La conjecture de BMR pour les groupes exceptionnels de rang 2*
- 21-4-2016 **Seminaire des thésards**, Université de Picardie Jules Verne  
*On generic Hecke algebras*
- 19-5-2015 **Séminaire d'Algèbre-Géométrie**, Université de Versailles - St Quentin  
*The Hecke algebras of the exceptional groups of rank 2*
- 5-2-2015 **Seminar Gruppen und Darstellungen**, Technische Universität Kaiserslautern  
*The BMR freeness conjecture: the exceptional groups of rank 2*
- 26-3-2014 **Seminaire des thésards "Bourbakettes"**, Université Paris Diderot  
*Groupe de tresses*
- 12-3-2014 **Séminaire de théorie des groupes**, Université de Picardie Jules Verne  
*Deformations of the finite quotients of the braid group on 3 strands*
- 25-2-2010 **Group theory seminar**, EPFL  
*Representation Theory and Young tableaux*

### Local Talks

#### **Weekly working group**, Universität Stuttgart.

- 15-11-2022 *Exact Borel subalgebras*
- 23-4-2019 *The double centraliser property*
- 4-12-2018 *Koszul Rings*
- 6-2-2018 *Representation type of Schur Algebras*
- 21-11-2017 *The Kronecker Algebra*
- 27-6-2017 *A talk based on Auslander's Philadelphia Notes*
- 10-1-2017 *On Derivators*

#### **Groupe de travail sur les groupes de tresses**, Université de Picardie Jules Verne.

- 10-5-2016 *Sur la conjecture de BMR*
- 13-10-2015 *Une application via éléments de Schur aux représentations de basse dimension de  $B_3$  II*
- 6-10-2015 *Une application via éléments de Schur aux représentations de basse dimension de  $B_3$  I*
- 29-9-2015 *La conjecture de liberté pour les quotients finis de  $B_3$*

#### **Groupe de travail de thésards**, Université de Picardie Jules Verne.

- 3-4-2014 *Revêtements II*
- 17-3-2014 *Revêtements I*
- 20-2-2014 *La méthode de Van-Kampen*

## Posters

11-6-2019 **Groups, Rings and associated structures 2019**, *Domain Sol Cress*, best poster award  
*Proving six cases of the BMM trace conjecture through computational methods*

## Attended conferences

- Jun 2022 **Kolloquium zu Algebra und Geometrie**, *Universität Stuttgart*
- May 2022 **4. FHST Meeting on Geometry and Analysis**, *Universität Stuttgart*
- Dec 2020 **Nikolaus Conference (virtual)**, *Lehrstuhl D, Aachen*
- Sep 2020 **Fourth annual conference of the SFB-TRR 195 (virtual)**, *Universität Kaiserslautern*
- Jun 2019 **Groups, Rings and associated structures 2019**, *Domain Sol Cress*
- May 2019 **WINART2**, *University of Leeds*
- Jul 2018 **Algebraic Representation Theory: a workshop in honor of Richard Dipper on the occasion of his retirement**, *Universität Stuttgart*
- Jun 2018 **Groupes d'Artin et algèbres de Hecke**, *Université de Picardie Jules Verne*
- Jun 2018 **Complex Reflection Groups and their Braid Groups**, *Université de Caen*
- May 2018 **GABY 2018**, *Università Degli Studi di Milano–Bicocca*
- Feb 2017 **Winterbraids VII**, *Université de Caen*
- Dec 2016 **Nikolaus Conference**, *Lehrstuhl D, Aachen*
- Sep 2016 **Finite Chevalley groups, reflection groups and braid groups**, *EPFL*
- Jun 2016 **Journée mathématique du LAMFA**, *Université de Picardie Jules Verne*
- May 2016 **Rencontre de l'ANR ACORT à Amiens**, *Université de Reims Champagne-Ardenne*
- Mar 2016 **Journées d'algèbre**, *Université de Caen*
- Jul 2015 **Applied Representation Theory**, *Université de Picardie Jules Verne*
- Jun 2015 **Journée mathématique du LAMFA**, *Université de Picardie Jules Verne*
- Jan 2015 **Perspectives in Lie Theory**, *Centro di Ricerca Matematica Ennio De Giorgi, Pisa*
- Nov 2014 **Algèbres et noeuds**, *Université de Versailles–St Quentin*
- Apr 2014 **Journée de présentation de SAGE**, *Université de Picardie Jules Verne*
- Jan 2014 **Algebra and Computation**, *Université Lyon 1*
- Dec 2013 **Darstellungstheoretage**, *Lehrstuhl D, Aachen*
- Dec 2013 **Nikolaus Conference**, *Lehrstuhl D, Aachen*
- Nov 2013 **Réunion d'utilisateurs de Sage en région parisienne**, *Observatoire de Paris*
- Jul 2013 **Combin'à Tours**, *Université de Tours*
- Jun 2013 **Journée mathématique du LAMFA**, *Université de Picardie Jules Verne*
- Jan 2013 **Combinatoire Algébrique en théorie des Représentations**, *Université de Besançon*
- Dec 2012 **Nikolaus Conference**, *Lehrstuhl D, Aachen*
- May 2012 **Théorie de Garside: état de l'art et perspectives**, *Université de Picardie Jules Verne*
- Sep 2008 **Problems in Analysis**, *University of the Aegean Sea*



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## Further scientific activities

- Feb 2020 *Professional Communications for Academics*, Sprachenzentrum, Stuttgart.  
Dec 2017 *Effective teaching in English*, Sprachenzentrum, Stuttgart.  
Sep 2017 *Writing Reader Friendly Texts in English*, Sprachenzentrum, Stuttgart.  
Jun 2017 *Using Writing to Improve Student Learning*, HDZ, Stuttgart.  
Jun 2017 *Counting women: the challenges of being a female mathematician*, SwissMap, Zürich.  
May 2015 Tutor in the program *Animath pour collégiens et lycéens*.  
Apr 2015 *The use of Hal in science and bio-medicine*, CFDip, Paris.  
Apr 2015 *Group management*, CFDip, Paris.  
Apr 2015 *Latex in English*, CFDip, Paris.  
Jun 2011 Tutor in the program *Introduction to LaTeX*, University of Athens.  
2004–2007 Participant in the project *Didactics of Mathematics*, University of Athens.

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## Fellowships, Scholarships and Awards

- 2019–2023 Postdoctoral Fellowship, Universität Stuttgart.  
2017–2019 Postdoctoral Fellowship, Universität Stuttgart.  
2016–2017 Postdoctoral Fellowship, Universität Stuttgart.  
2015–2016 ATER, Université de Picardie Jules Verne.  
2012–2015 Ph.D. scholarship from Université Paris Diderot.  
2002 2nd place in the National Mathematics Competition “Euclides” of the Hellenic Mathematical Society.  
2001 4th place in the National Mathematics Competition “Euclides” of the Hellenic Mathematical Society.  
2000-2002 3 Distinctions from the Ministry of Education on the academic performance and 1 Prize of shining among the other classmates.

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## Languages

- GREEK Native proficiency  
ENGLISH Full professional proficiency (Certificate of Proficiency in English, University of Michigan)  
FRENCH Full professional proficiency (Semester-long courses in French language for foreigners (Français Langue Etrangère), level C1, Université Paris Diderot)  
GERMAN Full professional proficiency (B2 Deutsch-Test für Zuwanderer)

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## Interests

- DANCE Ballet and Modern dance  
PIANO Participated in several concerts  
OTHER Cinema, Music, Cooking, Swimming, Origami, Countryside activities