

## CURRICULUM VITÆ

### **Guillaume RICOTTA**

Nationality: French.

Date of birth: 09 April 1976.

Place of Birth: Beauvais (Oise, France).

Marital status: Civil union.

### **Contact informations**

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### **Academic background**

#### **November 22, 2011**

- "**Habilitation à Diriger des Recherches**":

Etude analytique des formes automorphes et de leurs fonctions  $L$   
namely

Analytic study of automorphic forms and  $L$ -functions.

The referees are Etienne Fouvry, Andrew Granville and Emmanuel Kowalski. The members of my HR examining board are Karim Belabas, Yuri Bilu, Etienne Fouvry, Emmanuel Kowalski and Philippe Michel.

- Postdoctoral fellow at Université de Montréal (Québec, Canada) under the direction of Andrew Granville.

#### **2004**

- "**Doctorat de Mathématiques pures**", Université de Montpellier 2 (France) obtained with honours:

Zéros réels et taille des fonctions  $L$  de Rankin-Selberg par rapport  
au niveau

namely

Real zeros and size of Rankin-Selberg  $L$  functions in the level  
aspect.

The referees are Etienne Fouvry and Henryk Iwaniec. The members of my PhD examining board are Bryan Conrey, Etienne Fouvry, Emmanuel Kowalski, Philippe Michel, Emmanuel Royer and Robert Silhol.

#### 2001-2004

- "Allocataire moniteur" (namely PhD and teaching duties) at Université de Montpellier 2 (France). My teaching advisor is Jacques Lafontaine and my research advisor is Philippe Michel.

#### 2000-2001

- "Diplôme d'Études Approfondies" of Mathematics at Université de Montpellier 2 (France) obtained with honours.
- Post-graduate vocational qualification of Mathematics and Applications (third year) at École Normale Supérieure de Lyon (France) obtained with honours.

#### 1999-2000

- "Agrégation externe de Mathématiques" at École Normale Supérieure de Lyon (France). Ranked 63 about 500.

#### 1998-1999

- Master degree in Mathematics at Université Claude Bernard (Lyon, France) obtained with honours.
- Post-graduate vocational qualification of Mathematics and Applications (second year) at École Normale Supérieure (Lyon, France) obtained with honours.

#### 1997-1998

- Bachelor degree in Mathematics at Université Claude Bernard (Lyon, France) obtained with honours.
- Post-graduate vocational qualification of Mathematics and Applications (first year) at École Normale Supérieure de Lyon (France) obtained with honours.

#### 1994-1997

- "Mathématiques Supérieures et Spéciales" (Post-secondary program leading to the nationwide competitive examinations to "Grandes Écoles") at Lycée Joffre (Montpellier, France).

#### 1994

- "Baccalauréat C" (Mathematics and Sciences) obtained with honours.

#### 1991-1994

- "Lycée" Saint-Joseph (Carpentras, France).

#### 1987-1991

- "Collège" Saint-Joseph (Carpentras, France).

#### 1982-1987

- "École primaire" Saint-Joseph (Carpentras, France).

#### 1979-1982

- "École maternelle" La Cité Verte (Carpentras, France).

### **Military Service**

Exempted in October 1998.

### **Position**

- 2011-2013: **Marie Curie Fellow** (Intra-European Fellowship within the 7th European Community Framework Programme<sup>1</sup>), ETH Zürich.
- 2005-2011: "Maître de Conférences" (tenured assistant professor), Université Bordeaux 1.

### **Invited visits in foreign institutions**

- Februray 3, 2012 – February 18, 2012: The Ohio State University, on the invitation of Roman Holowinsky.
- January 3, 2011 – April 31, 2011: Centre Interfacultaire Bernoulli at Ecole Polytechnique Federale de Lausanne, on the invitation of Emmanuel Kowalski and Philippe Michel. Special semester: Group actions in Number Theory.
- July 19, 2010 – July 30, 2010: Forschungsinstitut für Mathematik (Zurich).
- April 29, 2010 – May 28, 2010: Centre de Recherches Mathématiques, Montréal.
- October 20, 2009 – November 1, 2009: Alfréd Rényi Institute (Hungarian Academy of Sciences), on the invitation of Gergely Harcos.
- May 1, 2008 – August 31, 2008: University of Nottingham (United Kingdom), on the invitation of Ivan Fesenko.
- December 1, 2007 – January 31 2008: University of Nottingham (United Kingdom), on the invitation of Ivan Fesenko.
- January 6, 2006 - June 28, 2006: Special semester, Analysis in Number Theory, Centre de Recherches Mathématiques, Montréal (Québec, Canada).
- October 18, 2004 - October 26, 2004: Princeton University (New-Jersey, United States).
- June 30, 2002 - July 20, 2002: Park City Mathematics Institute (PCMI), Park City (Utah, United-States).

### **Invited lectures (Workshop-Conference-Summer School)**

#### **2009**

- Théorie des nombres et applications, CIRM, November 30-December 4.
- Géométrie, dynamique et représentations des groupes, CIRM, November 9-13.
- Explicit Methods in Number Theory, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach (Germany), July 12-18.

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<sup>1</sup>Project ANERAUTHI, grant agreement number PIEF-GA-2009-25271.

**2008**

- French-Canadian Conference (Montreal, Canada), June 1-6.

**2007**

- Explicit Methods in Number Theory, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach (Germany), July 15-21.
- XXV<sup>èmes</sup> Journées Arithmétiques Edimburgh (Scotland), July 2-6.
- Analytic Number Theory School, International Centre for Theoretical Physics, Trieste, May 5-11.

**2006**

- Arithmetic Aspects of Random Matrices and Quantum Chaos, Université Bordeaux 1 (France), April 24-28.
- $L$ -functions and Related Themes, Centre de Recherches Mathématiques, Montréal (Québec, Canada), February 14.

**2005**

- Conference in honour of Henryk Iwaniec, Université Bordeaux 1, October 25.

**2004**

- CMS Winter 2004 Meeting, Montréal (Québec, Canada), December 11-13.
- Québec-Maine Number Theory Conference, Université de Laval, Québec (Quebec, Canada), October 2-3.
- Workshop on Spectral Theory and Automorphic Forms, Centre de Recherches Mathématiques, Montréal (Québec, Canada), May 8.
- Colloque Jeunes Chercheurs en théorie des nombres 2004, La Grande-Motte (France), March 29-31.

**Invited participant (Workshop-Conference-Summer School)****2012**

- Number theory and applications, CIRM (Luminy), January 16-20.

**2011**

- Initial winter school, Centre Interfacultaire Bernoulli, EPFL Lausanne, January 18-28.

**2008**

- Analytic theory of  $GL_3$  automorphic forms and applications, American Institute of Mathematics, Palo Alto (California, United States), November 17-21.
- Random matrices,  $L$ -functions and primes, ETH Zurich, October 27-31.
- Algorithmics of  $L$ -functions, September 14-18 (ETH Zurich, Switzerland).
- Multiple Dirichlet Series and Applications to Automorphic Forms, August 4-8 (Edinburgh, Scotland).

**2006**

- Subconvexity bounds for L-functions, American Institute of Mathematics, Palo Alto (California, United States), October 16-20.
- Colloque international de Théorie Analytique des Nombres, at the occasion of Jean-Marc Deshouillers' birthday (60 years old) , CIRM, September 11-15.
- Formes modulaires p-adiques et applications, Centre de Rencontres Mathématiques, July 17-21.
- Additive Combinatorics, Centre de Recherches Mathématiques, Montréal (Québec, Canada), April 5-12.
- CRM-Clay School on Additive Combinatorics, Centre de Recherches Mathématiques, Montréal (Québec, Canada), March 30-April 5.
- Anatomy of integers, Centre de Recherches Mathématiques, Montréal (Québec, Canada), March 13-17.

**2005**

- SMS-NATO ASI Summer School Equidistribution in Number Theory, Université de Montréal, Montréal (Québec, Canada), July 11-22.

**2004**

- Workshop on Matrix Ensembles and  $L$ -functions, Newton Institute, Cambridge (England), July 12-16.

**2003**

- XXIII èmes Journées Arithmétiques Graz 2003, Graz (Austria), July 6-12.
- "Colloque Jeunes": modular forms and transcendence, CIRM, Luminy (France), May 26-30.
- Program on Automorphic Forms, Fields Institute, Toronto (Ontario, Canada), April 12-May 11.

**2002**

- Automorphic Forms and Applications, Institute for Advanced Studies (IAS) / Park City Mathematics Institute (PCMI), Park City (Utah, United-States), June 30-July 20.

**Seminar talks****2012**

- Rencontre de théorie analytique et élémentaire des nombres, Institut Henri Poincaré (Paris), June 11.
- Ohio State University Number Theory Seminar, February 9.

**2011**

- Height of Heegner points, GANT seminar (EPFL, Lausanne), April 18.

**2010**

- Quelques informations sur la hauteur des points de Heegner, Laboratoire de Mathématiques de Besançon, November 4.
- Séminaire de Théorie des Nombres et Combinatoire (Université Claude Bernard Lyon 1), February 9.

**2009**

- Zeros of symmetric power  $L$ -functions, Alfréd Rényi Institute (Hungarian Academy of Sciences), October 29.

**2008**

- Zeros of symmetric power  $L$ -functions, School of Mathematical Sciences (Nottingham), August 13.
- Mean-periodicity and zeta functions, Heilbronn Seminar (Bristol), May 21.
- Asymptotic height of Heegner points and applications, School of Mathematical Sciences (Nottingham), January 16.

**2007**

- Rencontre de théorie analytique et élémentaire des nombres, Institut Henri Poincaré (Paris), October 22.

**2006**

- Québec-Vermont Number Theory Seminars, CICMA, March 2.

**2005**

- Séminaire arithmétique et géométrie algébrique (SAGA), Université de Paris-Sud XI, October 18.

**2004**

- Québec-Vermont Number Theory Seminars, CICMA, October 28.
- Princeton University/Institute for Advanced Study Number Theory Seminar, October 25.
- Séminaire de théorie des nombres et combinatoire, Institut Girard Desargues, Université de Lyon 1, May 27.
- Séminaire de théorie analytique des nombres et problèmes diophantiens, Université Bordeaux 1, Talence (France), March 4.
- Séminaire de théorie des nombres, algorithmique et cryptographie du Mirail, Université de Toulouse II (STNACM), Toulouse (France), February 5.
- Séminaire de théorie analytique et élémentaire des nombres, Université de Paris-Sud XI, Paris (France), February 2.

**Teaching duties****2010-2011**

- Supervision of Olga Balkanova (master student) in Université Bordeaux 1 (France): " $GL(3)$  Kloosterman sums".
- Supervision of René Olivetto (master student) in Université Bordeaux 1 (France): "Sup norms of  $GL(2)$  automorphic forms".
- Course in Methodologie First Semester (first year of university) in Université Bordeaux 1 (France).

- Course in MHT411A Third Semester (second year of university) in Université Bordeaux 1 (France). Groups, rings and fields.
- Tutorial in MHT411A Fifth Semester (third year of university) in Université Bordeaux 1 (France). Groups, rings and fields.

**2009-2010**

- Master Course on «Automorphic forms on  $GL(3)$ » in Université Bordeaux 1 (France).
- Course in MHT411A Third Semester (third year of university) in Université Bordeaux 1 (France). Groups, rings and fields.
- Tutorial in MHT411A Fifth Semester (third year of university) in Université Bordeaux 1 (France). Groups, rings and fields.

**2008-2009**

- Course in PNG301 Third Semester (second year of university) in Université Bordeaux 1 (France). Basis of Fourier Analysis.
- Course in Methodologie First Semester (first year of university) in Université Bordeaux 1 (France).
- Tutorial in Licence ST Third Semester (second year of university) in Université Bordeaux 1 (France). Teacher-cum-researcher in charge: Martin Sombra. Groups, rings and fields.
- Master Course on «Linnik's problems and harmonic analysis» in Université Bordeaux 1 (France).
- Tutorial in Master Crypto Seventh Semester (fourth year of university) in Université Bordeaux 1 (France). Teacher-cum-researcher in charge: Karim Belabas. Elliptic curves.
- Supervision of Pamkaj Botrel (master student) in Université Bordeaux 1 (France): "Equidistribution of Hecke eigenvalues".
- Supervision of Michael Adjedj and Christophe Fong (master students) in Université Bordeaux 1 (France): "Applications du couplage de Weil sur les courbes elliptiques".

**2007-2008**

- Course in PNG301 Third Semester (second year of university) in Université Bordeaux 1 (France). Basis of Fourier Analysis.
- Course in Methodologie First Semester (first year of university) in Université Bordeaux 1 (France).
- Tutorial in Licence ST Second Semester (first year of university) in Université Bordeaux 1 (France). Teacher-cum-researcher in charge: P. Cassou-Nogues. Groups, rings and fields.
- Course in PNG201 (Mathématiques pour les sciences de la matière 1) Second Semester (first year of university) in Université Bordeaux 1 (France). Basis on Real Analysis.
- Tutorial in Master Crypto Seventh Semester (fourth year of university) in Université Bordeaux 1 (France). Teacher-cum-researcher in charge: Karim Belabas. Elliptic curves.
- Supervision of Cindy Malaterre and Déborah Jourdes (master student) in Université Bordeaux 1 (France): "Applications du couplage de Weil sur les courbes elliptiques".

**2006-2007**

- Tutorial in Licence MISMI First Semester (first year of university) in Université Bordeaux 1 (France). Teacher-cum-researcher in charge: A. Yger.
- Course in PIN301 (Mathématiques pour les sciences de la matière 2). Third Semester (second year of university) in Université Bordeaux 1 (France). Basis of Fourier Analysis.
- Course in PIN204 (Mathématiques pour les sciences de la matière 1). Second Semester (first year of university) in Université Bordeaux 1 (France). Basis on Real Analysis.
- Tutorial in Licence ST. Second Semester (first year of university) in Université Bordeaux 1 (France). Teacher-cum-researcher in charge: A. Hénaut. Basis on Algebra.
- Supervision of students in Licence ST. Second Semester (first year of university) in Université Bordeaux 1 (France). Professional project.
- Supervision of Nicolas Castagnet (master student) in Université Bordeaux 1 (France): "Groupe des classes des corps cyclotomiques et applications arithmétiques".

#### 2005-2006

- Tutorial in Licence MISMI. First Semester (first year of university) in Université Bordeaux 1 (France). Teacher-cum-researchers in charge: A. Iollo and E. Kowalski.
- Course in PIN301 (Mathématiques pour les sciences de la matière 2). Third Semester (second year of university) in Université Bordeaux 1 (France). Basis of Fourier Analysis.
- Supervision of Gwladys Pinaud (master student) in Université Bordeaux 1 (France): "Zéros non-triviaux de la fonction  $\zeta$  de Riemann".
- Supervision of Leslie Blond (master student) in Université Bordeaux 1 (France): "Régions sans zéros pour les fonctions  $L$  de Dirichlet et applications arithmétiques".

#### 2004-2005

- MAT 1903 Section C. First semester. Differential and Integral Calculus in Université de Montréal (Québec, Canada).
- MAT 1903 Section B. Second semester. Differential and Integral Calculus in Université de Montréal (Québec, Canada).

#### 2003-2004

- Tutorial in Deug MIAS Second semester (first year of university) in Université de Montpellier 2 (France). Teacher-cum-researcher in charge: N. Saby.

#### 2002-2003

- Tutorial in Deug MIAS Second semester (first year of university) in Université de Montpellier 2 (France). Teacher-cum-researcher in charge : N. Saby.

**2001-2002**

- Tutorial in Deug MASS First semester (first year of university) in Université de Montpellier 2 (France). Teacher-cum-researcher in charge : M. Capdequi-Peyranere.
- Tutorial in Deug SM Second semester (first year of university) in Université de Montpellier 2 (France). Teacher-cum-researcher in charge : J. Lafontaine.

**Master students****2010**

- *GL(3) Kloosterman sums*, Olga Balkanova.
- *Sup norms of GL(2) automorphic forms*, René Olivetto.

**2009**

- *Applications du couplage de Weil sur les courbes elliptiques*, Michael Adjedj and Christophe Fong.
- *Equidistribution of Hecke eigenvalues*, Pamkaj Botrel.

**2008**

- *Applications du couplage de Weil sur les courbes elliptiques*, Cindy Malaterre and Déborah Jourdes.

**2007**

- *Groupe des classes des corps cyclotomiques et applications arithmétiques*, Nicolas Castagnet.

**2006**

- *Zéros non-triviaux de la fonction  $\zeta$  de Riemann*, Gwladys Pinaud,
- *Régions sans zéros pour les fonctions L de Dirichlet et applications arithmétiques*, Leslie Blond.

**Doctoral students**

- Olga Balkanova (2011-...), joint supervision with Andrew Granville (Université de Montréal), Giuseppe Molteni (Università degli Studi di Milano) and Laurent Habsieger (Unité Mixte Internationale CNRS-SRM, Montréal).
- Damien Bernard (2010-....), joint supervision with Emmanuel Royer (Université Blaise Pascal).

**Administrative activities**

- 2011-....: Member of hiring committee (Institut de Mathématiques de Jussieu).
- 2009-....: Local coordinator of the joint doctoral program Erasmus Mundus Algant at Université Bordeaux 1.
- 2008-2011: Member of Conseil de l'UFR Mathématiques et Informatique (Université Bordeaux 1).
- 2008-2010: Member of Commission Consultative (hiring committee, Université Bordeaux 1).
- 2008-2009: Co-organiser of the Winter School on Quantum Chaos in Université Bordeaux 1 (January 26-30, 2009) with Marie-Line Chabanol and Stéphane Nonnenmacher.

- 2007-2009: Organiser of the teaching class PNG301 (Université Bordeaux 1).
- 2007-2009: Organiser of the Number Theory Seminar of Université Bordeaux 1.
- 2007-2008: Organiser of the teaching class PNG201 (Université Bordeaux 1).
- 2004-2005: Co-organiser of the seminar of Analytic Number Theory in Université de Montréal (Québec, Canada) with Harald Helfgott and Habiba Kadiri.
- 2001-2002: Co-organiser of "Journées des doctorants", École doctorale I2S, Montpellier (France).
- Referee for CRSNG grant proposals.

### Distinctions

- **Marie Curie Intra-European Fellowships for Career Development** within the 7th European Community Framework Programme<sup>2</sup>.
- 2010: Délégation CNRS (6 months, a French grant).
- 2009: Délégation CNRS (6 months, a French grant).
- 2005-2009: Member of the "ANR Jeunes Chercheurs" (a French grant), Arithmetic Aspects of Random Matrices and Quantum Chaos (the main member is Emmanuel Kowalski and among other members are Marie-Line Chabanol, Christophe Delaunay and Jean-Marc Deshouillers).

### Editorial Activities

- Reviewer for Math. Reviews.
- Referee for Canadian Journal of Mathematics.
- Referee for IMRN.
- Referee for International Journal of Number Theory.
- Referee for Inventiones Mathematicae.
- Referee for Journal of Number Theory.
- Referee for Journal de Théorie des Nombres de Bordeaux.
- Referee for Mathematische Zeitschrift.
- Referee for Nonlinearity.
- Referee for Proceedings of the London Mathematical Society.
- Referee for Transactions of the American Mathematical Society.

### Publications

#### 2011

- *A new bound for the sup-norm of automorphic forms on non-compact modular curves in the level aspect*, with Harald Helfgott.
- *An explicit density estimate*, with at least 39 co-authors, submitted.
- *Mean-periodicity and zeta functions*, with Ivan Fesenko and Masatoshi Suzuki, to be published in **Annales de l'Institut Fourier**.
- *Statistics for low-lying zeros of symmetric power  $L$ -functions in the level aspect*, with Emmanuel Royer, published in **Forum Mathematicum** 23, 969–1028.

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<sup>2</sup>Project ANERAUTHI, grant agreement number PIEF-GA-2009-25271.

**2010**

- *Lower order terms for the one-level densities of symmetric power  $L$ -functions in the level aspect*, with Emmanuel Royer, published in **Acta Arithmetica** 141, no. 2, 153–170.

**2009**

- *Comportement asymptotique des hauteurs des points de Heegner*, with Nicolas Templier, published in **Journal de Théorie des Nombres de Bordeaux** 21, no. 3, 741–753.
- *The second moment of Dirichlet twists of Hecke  $L$ -functions*, with Peng Gao and Rizwanur Khan, published in **Acta Arithmetica** 140, 57–65.
- *On the expected result for the second moment of twisted  $L$ -functions*, published in **Mathematisches Forschungsinstitut Oberwolfach**, Report No. 33/2009, Explicit Methods in Number Theory (July 12th–July 18th), 14–16.

**2008**

- *Hauteur asymptotique des points de Heegner*, with Thomas Vidick, published in **Canadian Journal of Mathematics**, Vol. 60, No. 6, 1406–1436.

**2007**

- *Statistics for low-lying zeros of Hecke  $L$ -functions in the level aspect*, published in **Mathematisches Forschungsinstitut Oberwolfach**, Report No. 34/2007, Explicit Methods in Number Theory (July 15th–July 21st), 19–24 (2007).

**2006**

- *Real zeros and size of Rankin-Selberg  $L$ -functions in the level aspect*, published in **Duke Mathematical Journal**, Vol. 131, No. 2 (2006), 291–350.