

CURRICULUM VITAE

EMILY BURGUNDER

PERSONAL INFORMATION

First name, surname: Emily Burgunder
Date and place of birth: 11/05/1982 at Thann (68) France.
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Personal homepage: www.impan.pl/~burgunde/
Citizenship: British, French
Languages: English and French mother tongue, German spoken, Polish rudiments.

EDUCATION AND FELLOWSHIPS

2008–2009 Post-doctoral fellowship IPDE at the Banach Center, IM PAN, Poland.
2005–2008 Ph.D. student and teaching assistant at the University of Montpellier II.
Ph.D viva voce: 20/06/2008.
Title: Generalised bialgebras: from the Kashiwara-Vergne conjecture to Kontsevich graph complexes.
Jury: Pierre Catier (referee), Teimuraz Pirashvili (referee), Gilles Halbout (examinator), Jean-Yves Thibon (examinator), Alain Bruguières (supervisor), Jean-Louis Loday (supervisor).
2004–2005 Master in Fundamental Mathematics at the universities of Mulhouse and Strasbourg I. Supervisor : Jean-Louis Loday.
Courses: Tropical geometry I and II, Morse homology, Floer homology, operades.
2000–2003 Degree at the University of Mulhouse. Supervisor : Michel Goze.

RESEARCH DOMAIN

Representations theory, operads, homological algebra.

LIST OF PUBLICATIONS

- (1) *Infinite magmatic bialgebras*, Adv. in Appl. Math, Vol 40/3 p. 309–329.
- (2) *The Kashiwara-Vergne conjecture and the Eulerian idempotent*, Ann. Inst. Fourier 58 (2008), no. 4, 1153–1184.

Date: May 5, 2009.

- (3) Joint with R. Holtkamp, *Partial magmatic bialgebras*, Homology, Homotopy and Applications 10 (2008), No.2, 59-81.
- (4) *A non-commutative version of Kontsevich graph complex and Leibniz homology*, ArXiv mathQA/0804.2052.

TEACHING

2005-2008: As teaching assistant in Montpellier, I taught 64h per year. I was in charge of the exercises courses related to the analysis course first and second year, arithmetic course first year, and algebra course second year. I also taught exercises courses in computer sciences applied to mathematics through the software Maple. I taught a course for the students preparing the entering exams to be a math teacher (fourth year).

ADMINISTRATIVE TASKS

I organised in collaboration with Maria Ronco (Valparaiso, Chile) and Damien Calaque (Lyon, France) a workshop on Kontsevich formality theorem and its combinatorial aspects. This workshop took place in Banach Center, Warsaw, from the 06 to 09 April 2009.

The goal of the workshop was first to introduce the theory of formality by deformation and quantisation of Kontsevich. Then, to understand how it implies the Duflo isomorphism and the Kashiwara-Vergne conjecture following the work of Alekseev, Meinrenken and Torossian. We then tackled the link between the Kashiwara-Vergne conjecture and the Drinfeld associators through the recent work of Alekseev, Enriquez and Torossian.

COLLABORATIONS, POSITIONS IN A FOREIGNER COUNTRY

October 2008-September 2009 Postdoctoral fellowship IPDE at the Banach Center, IM PAN, Warsaw, Poland.

August-September 2008 One month invitation to work with Pr. M. Ronco, Valparaiso, Chili. This stay was the continuation of my last stay in Valparaiso and Pr. Ronco's stays on January 2008 and July 2008.

November 2007 One month invitation by Pr. M. Ronco, Valparaiso, Chili. I was invited to work with Pr. M. Ronco on the Parking functions. These combinatorial objects appears as bijection of Shi arrangements, A_∞ algebras, Stasheff's polytope.

12-22 Februar 2007 Invitation at Max-Planck Institut für Mathematics, Bonn, Germany. This invitation, led to a collaboration with Ralf Holtkamp on magmatic bialgebras. This visit was continued with Ralf Holtkamp's stay in Montpellier in May 2007, and was completed with the article [?].

January 2007 One month invitation by Pr. Piotr Hajac in the framework of the "Transfer of Knowledge" project, Warsaw, Poland. I had the opportunity to explain the research I was doing in my thesis, and to get acquainted to Hopf-cyclic homology.

COMMUNICATIONS

As an invited speaker, I gave talks at the following international conferences:

- "GDR Topologie algébrique", Nice, France, November 02-04, 2006 : *The Kashiwara-Vergne conjecture and the Eulerian idempotent*.

- “Workshop on Hopf Algebras and Props”, Clay Mathematics Institute, Cambridge, MA, USA, March 05–09, 2007 : *The Kashiwara-Vergne conjecture and the Eulerian idempotent*.
- “Rencontres Alsaciennes des Mathématiciens et des Physiciens”, Mulhouse, June 06–09, 2007 : *Idempotents de Lie et la conjecture de Kashiwara-Vergne*.
- “NCG and Quantum Groups: A special session of the 1st joint meeting of the AMS and the PTM”, Warsaw, July 31–August 2, 2007 : *Leibniz algebras and graph complexes*.
- “Hochschild cohomology of algebras”, BIRS, Banff Canada, September 02–07, 2007 : *Leibniz homology and Kontsevich’s graph complexes*.
- “Journée Agata”, Montpellier II, France, January 07, 2008 : *Une version non commutative des graphes complexes de Kontsevich*.
- “Conférence on combinatorial algebra and trees”, Lyon, France, May 26–31, 2008 : *Une version symétrique du complexe de graphes de Kontsevich*.
- “Journée groupes quantiques et géométrie de Poisson”, IHP, Paris, France, June 03, 2008, *Une version symétrique du complexe de graphes de Kontsevich*.
- “Aspects algébriques et géométriques des algèbres de Lie”, conférence pour les 60 ans de Michel Goze, Mulhouse, France, 12–14/06/08, *Une version symétrique du complexe de graphes de Kontsevich*.
- “GDR Topologie algébrique”, Paris 13, France, October 29–31, 2008, *Une version symétrique du complexe de graphes de Kontsevich et l’homologie de Leibniz*.
- “Homologie des algèbres : structures et applications”, CIRM, Luminy, France, 01–06/12/08, *Kontsevich graph complex and Leibniz homology*.
- “Operad 2009, international conference”, CIRM, Luminy, France, 20–30/04/09, *The Hopf algebra of Parking functions*.

I gave talk in the following seminars:

- *Magmatic bialgebras and Associative-Zinbiel bialgebras*, June 22, 2005, Bochum Seminar, Germany.
- *Bigèbres magmatiques binaires et infinies*, October 13, 2005, Séminaire AGATA Montpellier II, France.
- *Opération et "co"-opération*, April 05, 2006, Séminaire Doctorant Montpellier II, France.
- *L’idempotent Eulérien et la conjecture de Kashiwara-Vergne*, November 9, 2006, Séminaire Théorie des représentations et analyse harmonique, Strasbourg, France.
- *Idempotents de Lie et la conjecture de Kashiwara-Vergne*, December 21, 2006, Séminaire AGATA, Montpellier II, France.
- *Eulerian idempotent, Kashiwara-Vergne conjecture and cyclic homology*, January 08, 2007, Seminar of Noncommutative geometry, Warsaw, Poland.
- *Lie Idempotents and Kashiwara-Vergne conjecture*, February 16, 2007, Gauge Theory Seminar, Max-Planck-Institut für Mathematik, Bonn, Germany.
- *Idempotents de Lie et la conjecture de Kashiwara-Vergne*, April 02, 2007, Séminaire d’analyse algébrique, Paris 6, France.
- *Idempotents de Lie et la conjecture de Kashiwara-Vergne*, April 06, 2007, Séminaire Algèbres enveloppantes, Paris 6-7, France.

- *The Eulerian idempotent and the Kashiwara-Vergne conjecture*, November 15, 2007, V-Coloquio Matemático, Valparaíso, Chile.
- *Kontsevich graph complex and homology*, October 27, 2008, Seminar of Noncommutative geometry, Warsaw, Poland.
- *Parking functions and tridendriform bialgebra structures*, November 3, 2008, Seminar of Noncommutative geometry, Warsaw, Poland.
- *Parking functions and tridendriform bialgebra structures*, November 5, 2008, Algebra seminar, Glasgow, Scotland, UK.
- *Lie idempotents and their applications*, November 7, 2008, Konwersatorium dla doktorantów, Varsovie, Pologne.
- *Fonctions parking et les structures de bigèbres tridendrifomes*, November 27, 2008, Algebra seminar, Mulhouse, France.
- *Parking functions and their algebraic structures*, December 09, 2008, Algebraic topology, Warsaw, Poland.
- *Link between Kontsevich graph complexes and Loday-Quillen-Tsygan theorem*, December 11, 2008, Kathedra seminar, Warsaw, Poland.

I gave talk in the following workshops:

- *A categorification for the chromatic polynomial (en suivant Helme-Guizon et Rong)*, Workshop: Homotopy algebra and quantic groups, Montpellier, France, March 23, 2006.
- *A categorification for the chromatic polynomial, seconde partie (en suivant Helme-Guizon et Rong)*, Workshop: Algèbre homotopique et groupes quantiques, Montpellier, France, March 30, 2006.
- *Groupoïdes de Lie*, Workshop: Les orbifolds, Strasbourg, France, November 24–26, 2008.
- *Compatibility between cup products I*, Workshop: Kontsevich formality theory and the Duflo isomorphism, Banach Center, Warsaw, Poland, April 06–09, 2009.

PARTICIPATION TO MATHEMATICAL EVENTS

I attended, as a participant, at the following conferences:

- “RAMP 2004”, Mulhouse, France, June 15–17, 2004.
- “Opérades”, Strasbourg, France, November 5, 2004.
- “Opérades”, CIRM, Luminy, Marseille, France, April 4–8, 2005.
- “RAMP 2005”, Strasbourg, France, June 16–18, 2005.
- Colloque 2005 du GDR 2875 “Topologie Algébrique et Applications”, Villeneuve d’Ascq, France, October 19–22, 2005.
- “Série de Taylor de foncteurs et applications”, Lens, France, June 26–28, 2006.
- “Opérades”, Strasbourg, November 10–11, 2006.
- “Journée Mulhousienne d’algèbre du GTIA”, Mulhouse, France, November 25–26, 2005.
- “Hopf Algebras, Combinatorics, and Quantum Field Theory”, Leipzig, Germany, September 25–28, 2006.
- “Journée Dijonnaise d’algèbre du GTIA”, Dijon, France, June 15–16, 2006.
- “Combinatorics and Physics”, Max-Planck, Bonn, Germany, April 19–23, 2006.

- “Winter School : Geometric Group Theory”, Göttingen, Germany, December 12–15, 2007
- “Workshop on Algebraic Structures in Geometry and Physics ”, Leicester, England, UK, July 21-25, 2008.
- “Operad 2009, School”, CIRM, Luminy, France, April 20–27, 2009.

COMPLEMENTARY INFORMATION

Rescuer Diploma of rescuer and first-aid in team at the Red Cross.

Computer knowledge Maple, Mathematica, Mupad, C++, Latex, Word, Excel, Linux. Beginning to learn Sage.

Spare time Violin.