Curriculum Vitae

Cyrille Chenavier

Date of birth and nationality: January 3^{rd} 1987, French.

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Employments

2019-2020. Postdoctoral researcher at Institute for Algebra, Johannes Kepler Universität, Linz.

2018-2019. Postdoctoral researcher, Inria Lille - Nord Europe, Valse team.

2017-2018. Attaché temporaire d'enseignement et de recherche, University Paris-Est Marne-la-Vallée, Laboratoire
d'Informatique Gaspard-Monge.

2016-2017. Attaché temporaire d'enseignement et recherche, University Paris Diderot, Institut de Recherche en Informatique Fondamentale.

2013-2016. PhD fellow in Computer Science, University Paris Diderot.
Thesis: *Le treillis de opérateurs de réduction: applications aux bases Gröbner non commutatives et en algèbre homologique*, defended on 09/12/2016.
Advisors: *Yves Guiraud* (Inria - University Paris Diderot) and *Philippe Malbos* (University Claude Bernard Lyon 1).
Reviewers: *Vladimir Dotsenko* and *Jean Goubault-Larrecq*.
President committee: *Pierre-Louis Curien*.
Committee: *Roland Berger*, *Pierre-Louis Curien*, *Vladimir Dotsenko*, *Jean-Charles Faugère*, *Jean Goubault-Larrecq*, *Yves Guiraud*, *Muriel Livernet*, *Philippe Malbos* and *Paul-André Melliès*.
Founded by the project Formalisation du Calcul Algébrique, IDEX Sorbonne-Paris-Cité.

Research interests

- *Algebraic methods in linear rewriting:* commutative and noncommutative Gröbner bases, completion algorithms, lattice structures and rewriting theory, representations of rewriting systems by reduction operators.

- *Constructive methods in algebra:* effective homological algebra, formal methods for functional systems, symbolic computation and applications to module and operad theories.

Publications

Journal papers

1. *Quotients of the magmatic operad: lattice structures and convergent rewrite systems*, Experimental Mathematics, with Christophe Cordero and Samuele Giraudo, to appear, arXiv:1809.05083.
2. *Topological rewriting systems applied to standard bases and syntactic algebras*, Journal of Algebra, 550: 410-431, 2020.
3. *A lattice formulation of the noncommutative F_4 procedure*, International Journal of Algebra and Computation, 29(1):23-40, 2019.
4. *Syzygies among reduction operators*, Journal of Pure and Applied Algebra, 223(2):721-737, 2019.
5. *Reduction operators and completion of rewriting systems*, Journal of Symbolic Computation, 84:57-83, 2018.
6. *Confluence algebras and acyclicity of the Koszul complex*, Algebras and Representation Theory, 19(3):679-711, 2016.

Conference papers

7. *A geometric stabilization of planar switched systems*, with Rosane Ushirobira and Giorgio Valmorbida, accepted for publication to IFAC World Congress (IFAC 2020), hal-02366928.
8. *Normal forms of matrix words for stability analysis of discrete-time switched linear systems*, with Laurentiu Hetel et Rosane Ushirobira, accepted for publication to European Control Conference (ECC 2020), hal-02069712.

Preprints

9. *Compatible rewriting of noncommutative polynomials for proving operator identities*, with Clemens Hofstadler, Clemens G. Raab and Georg Regensburger, submitted to International Symposium on Symbolic and Algebraic Computation (ISSAC 2020), arXiv:2002.03626.
10. *A constructive version of Warfield's Theorem*, hal-02120656.

Workshop papers

11. *The diamond Lemma for non-terminating rewriting systems using deterministic reduction strategies*, with Maxime Lucas, 8th International Workshop on Confluence (IWC 2019), Dortmund, June 2019.
12. *The diamond Lemma for free modules*, 7th International Workshop on Confluence (IWC 2018), Oxford, July 2018.
13. *Generalizations of the associative operad and convergent rewrite systems*, with Christophe Cordero and Samuele Giraudo, 4th Workshop Higher-Dimensional Rewriting and Algebra (HDRA 2018), Oxford, July 2018.
14. *Detecting useless critical pairs*, 6th International Workshop on Confluence (IWC 2017), Oxford, September 2017.
15. *Upper-bound of reduction operators and computation of syzygies*, 3rd Workshop Higher-Dimensional Rewriting and Applications (HDRA 2017), Oxford, September 2017.
16. *An algebraic approach to confluence and completion*, 5th International Workshop on Confluence (IWC 2016), Obergurgl, September 2016.
17. *Reduction operators: rewriting properties and completion*, 2nd Workshop Higher-Dimensional Rewriting and Applications (HDRA 2016), Porto, June 2016.
18. *Confluence algebras and acyclicity of the Koszul complex*, Workshop Higher-Dimensional Rewriting and Applications (HDRA 2015), Warsaw, June 2015.

International conferences and workshop talks

- *An effective version of Warfield's theorem*, Conference on Applications of Computer Algebra, session Algebraic and Algorithmic Aspects of Differential and Integral Operator, Montreal, June 2018.
- *Reduction operators and completion of rewriting systems*, Journées Nationales du Calcul Formel, Luminy, February 2019.
- *The diamond lemma for free modules*, International Workshop on Confluence, Oxford, June 2018.
- *Reduction operators and completion of rewriting systems*, Conference on Applications of Computer Algebra, session Algebraic and Algorithmic Aspects of Differential and Integral Operator, Santiago de Compostela, June 2018.
- *Upper-bound of reduction operators and computation of syzygies*, Workshop Higher-Dimensional Rewriting and Applications, Oxford, September 2017.
- *Detecting useless critical pairs*, International Workshop on Confluence, Oxford, September 2017.
- *An algebraic approach to confluence and completion*, International Workshop on Confluence, Obergurgl, September 2016.
- *Reduction operators: rewriting properties and completion*, Workshop Higher-Dimensional Rewriting and Applications, Porto, June 2016.
- *Confluence algebras and acyclicity of the Koszul complex*, Summer school On Quivers: Computational Aspects and Geometric Applications, Kobe, July 2015.
- *Confluence algebras and acyclicity of the Koszul complex*, Workshop Higher-Dimensional Rewriting and Applications, Varsovie, June 2015.
- *Confluence algebras and acyclicity of the Koszul complex*, Workshop Algebras, Operads and Rewriting, Saint-Étienne, October 2014.

Teaching

2017-2018. ATER at Institut d'électronique et d'informatique Gaspard-Monge of University Paris-Est Marne-la-Vallée.
Hours: 192 (practical works, tutorials).
Levels: school engineering, undergraduate.
Courses: algorithms for data structures, programming, syntactic analysis, operating systems.

2016-2017. ATER at UFR d'informatique of University Paris Diderot.
Hours: 166 (lectures, practical works, tutorials).
Level: undergraduate.
Courses: algorithms for data structures, imperative and object-oriented programming.

2013-2016. Moniteur at UFR d'informatique of University Paris Diderot.
Hours: 188 (practical works, tutorials).
Levels: undergraduate.
Courses: algorithms for data structures, graphical user interfaces, imperative and object-oriented programming, types and objects.

Languages/softwares. Bison, C, Flex, Kotlin, Java, Python, Shell.

Student supervisation. *Chloé Xaintray*, 2^{nd} year undergraduate.
Title: *Interfaces fonctionnelles, streams et pivot de Gauss en Java.*