

Mathieu Duckerts-Antoine

Research keywords

Category theory, Categorical Galois theory, Homological categories, Non-abelian homology.

Professional experience

- 2014 – Now Postdoctoral fellow at the Centre for Mathematics, University of Coimbra, Coimbra (Portugal).
2007 – 2014 Teaching and research assistant at the Université catholique de Louvain, Louvain-la-Neuve (Belgium).

Education

- 2007 – 2013 **Ph. D. in Mathematics**, UCL - Université catholique de Louvain, Louvain-la-Neuve (Belgium).
Doctoral dissertation: *Fundamental groups in E-semi-abelian categories*.
Jury members:
Marino Gran (supervisor), George Janelidze (University of Cape Town), Rüdiger Kieboom (Vrije Universiteit Brussel), Tim Van der Linden, Enrico Vitale, Michel Willem (jury president).
2001 – 2006 **Master degree in Mathematics**, UNamur - Université de Namur, Namur (Belgium).
(with great distinction)
Master thesis: *Une introduction à différentes logiques et à la mathématique intuitionniste*.
Jury members:
Marcel Rémon (supervisor), Dominique Lambert, Timoteo Carletti.

Publications

Published

- M. Duckerts-Antoine, M. Gran and Z. Janelidze, *Epireflective subcategories and formal closure operators*, Theory and Applications of Categories, 32 (2017), No. 15, 526-546. Pdf available at <http://www.tac.mta.ca/tac/volumes/32/15/32-15abs.html>.
- M. Duckerts-Antoine, *Fundamental group functors in descent-exact homological categories*, Advances in Mathematics, 310 (2017), 64-120. Preprint available at <http://arxiv.org/abs/1604.03287>.
- M. Duckerts-Antoine, T. Everaert and M. Gran, *A description of the fundamental group in terms of commutators and closure operators*, Journal of Pure and applied algebra 216 (2012), 1837-1851. Preprint available at <http://arxiv.org/abs/1410.3218>.

Under review

- M. Duckerts-Antoine and T. Everaert, *A classification theorem for normal extensions*. Preprint available at <http://arxiv.org/abs/1604.02604>.
- M. Duckerts-Antoine and T. Van der Linden, *A Seifert-van Kampen theorem in non-abelian algebra*. Preprint available at <http://www.mat.uc.pt/preprints/ps/p1645.pdf>
- M. Duckerts-Antoine, V. Even and A. Montoli, *How to centralize and normalize quandle extensions*. Preprint available at <http://arxiv.org/abs/1703.09155>.

Talks

Invited talks

- 29 April 2015 *Higher Hopf formulae and fundamental group functors in almost Barr-exact homological categories*, CATALG2015, 3rd Workshop on Categorical Algebra: Recent developments and future perspectives, Università degli Studi di Milano, Gargnano (Italy).

Contributed talks

- 27 January 2017 *Comment centraliser des extensions de quandles*, Séminaire Itinérant de Catégories, Université Libre de Bruxelles, Brussels (Belgium).
- 30 May 2016 *A Seifert-van Kampen theorem in non-abelian algebra*, 4th Workshop on Categorical Methods in Non-Abelian Algebra, Universidade de Coimbra, Coimbra (Portugal).
- 15 June 2015 *A classification theorem for normal extensions*, Category Theory 2015, Universidade de Aveiro, Aveiro (Portugal).
- 8 November 2014 *Groupes fondamentaux et formules de Hopf*, Séminaire Itinérant de Catégories, Université Diderot Paris 7, Paris (France).
- 25 January 2014 *A classification theorem for normal extensions*, Categorical Methods in Algebra and Topology: Workshop in honour of Manuela Sobral on the occasion of her 70th birthday, Universidade de Coimbra, Coimbra (Portugal).
- 9 July 2013 *Fundamental groups in E-semi-abelian categories*, Category Theory 2013, Macquarie University, Sydney (Australia).
- 13 July 2012 *Generalized Hopf formulae for homology*, Workshop on Category Theory: In honour of George Janelidze, on the occasion of his 60th birthday, Universidade de Coimbra, Coimbra (Portugal).
- 21 October 2012 *Une description du groupe fondamental en termes de commutateurs et d'opérateurs de fermeture*, Séminaire Itinérant de catégories, Université du Littoral Côte d'Opale, Calais (France).

Seminars

- 13 December 2016 *How to centralize and normalize quandle extensions*, Seminário de Algebra, Lógica e Topologia, Universidade de Coimbra, Coimbra (Portugal).
- 7 April 2016 *On topological semi-abelian algebras*, Research Seminar Program, UC/UP Joint PhD Program in Mathematics, Universidade de Coimbra, Coimbra (Portugal).
- 5 February 2016 *A general homology coproduct theorem*, Category Theory Seminar, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 30 September 2014 *Fundamental group functors and higher Hopf formulae*, Seminário de Algebra, Lógica e Topologia, Universidade de Coimbra, Coimbra (Portugal).
- 7 March 2011 *Une description du groupe fondamental en termes de commutateurs et d'opérateurs de fermeture*, Séminaire interuniversitaire de catégories, Vrije Universiteit Brussel, Bruxelles (Belgium).
- 6 March 2008 *Une courte introduction à l'intuitionnisme*, Séminaire interuniversitaire de logique mathématique, Université catholique de Louvain, Louvain-la-Neuve (Belgium).

Posters

- 28 September 2011 *A description of the fundamental group in terms of commutators and closure operators*, CATALG2011, 2nd Workshop on Categorical Algebra: Recent developments and future perspectives, Università degli Studi di Milano, Gargnano (Italy).

Conferences and Workshops

Organised conferences

- 30 May – 1 June 2016 4th Workshop on Categorical Methods in Non-Abelian Algebra, Universidade de Coimbra, Coimbra (Portugal).

Attended conferences

- 21 – 22 May 2016 100th Peripatetic Seminar on Sheaves and Logic, University of Cambridge, Cambridge (United Kingdom).
- 31 October 2015 Séminaire Itinérant de Catégories, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 10 – 12 September 2015 Workshop in Category Theory and Algebraic Topology, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 14 – 19 June 2015 Category Theory 2015, Universidade de Aveiro, Aveiro (Portugal).
- 26 – 30 April 2015 CATALG2015, 3rd Workshop on Categorical Algebra: Recent developments and future perspectives, Università degli Studi di Milano, Gargnano (Italy).
- 29 January 2015 3rd Workshop on Categorical Methods in Non-Abelian Algebra, Université catholique de Louvain, Louvain-la-Neuve (Belgium).

- 8 November 2014 Séminaire Itinérant de Catégories, Université Diderot Paris 7, Paris (France).
- 11 – 13 September 2014 Summer School in Category Theory and Algebraic Topology, Ecole Polytechnique Fédérale de Lausanne, Lausanne (Switzerland).
- 29 June – 5 July 2014 Category Theory 2014, University of Cambridge, Cambridge (United Kingdom).
- 17 May 2014 Séminaire Itinérant de Catégories, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 24 – 26 January 2014 Categorical Methods in Algebra and Topology: Workshop in honour of Manuela Sobral on the occasion of her 70th birthday, Universidade de Coimbra, Coimbra (Portugal).
- 30 October 2013 Nord Pas de Calais / Belgium congress of mathematics, Université de Mons, Mons (Belgium).
- 7 – 13 July 2013 Category Theory 2013, Macquarie University, Sydney (Australia).
- 24 May 2013 Séminaire Itinérant de Catégories, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 8 March 2013 Séminaire Itinérant de Catégories, Université du Littoral Côte d’Opale, Calais (France).
- 21 October 2012 Séminaire Itinérant de Catégories, Université du Littoral Côte d’Opale, Calais (France).
- 9 – 13 July 2012 Workshop on Category Theory: In honour of George Janelidze, on the occasion of his 60th birthday, Universidade de Coimbra, Coimbra (Portugal).
- 19 May 2012 Séminaire Itinérant de Catégories, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 14 – 15 April 2012 93th Peripatetic Seminar on Sheaves and Logic, University of Cambridge, Cambridge (United Kingdom).
- 26 – 27 May 2011 Category theory, algebra and geometry, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 27 September – 1 October 2011 CATALG2011, 2nd Workshop on Categorical Algebra: Recent developments and future perspectives, Università degli Studi di Milano, Gargnano (Italy).
- 27 – 28 November 2010 91th Peripatetic Seminar on Sheaves and Logic, University of Amsterdam, Amsterdam (Netherlands).
- 5 June 2010 Séminaire Itinérant de Catégories, Université de Picardie, Amiens (France).
- 12 – 13 December 2009 89th Peripatetic Seminar on Sheaves and Logic, Université catholique de Louvain, Louvain-la-Neuve (Belgium).
- 5 – 8 May 2009 Philosophy and Foundations of Mathematics: Epistemology and Ontological aspects. A conference dedicated to Per Martin-Löf on the occasion of his retirement, Uppsala University, Uppsala (Sweden).
- 23 April 2008 Cameleon, University of Cambridge, Cambridge (United Kingdom).
- 7 November 2007 Logique et réalité, Université catholique de Louvain, Louvain-la-Neuve (Belgium).

Teaching

2007–2014 Practical work (for undergraduate students):

- Mathématiques générales, LMAT1111 (1st year, general mathematics).
- Algèbre et calcul matriciel, LINGE1114 (1st year, linear algebra).
- Analyse, LINGE1121 (1st year, analysis).
- Mathématique en économie et gestion 1, LECGE1112 (1st year, general mathematics for economics and engineering economics).
- Algèbre linéaire, LMAT1131 (1st year, linear algebra).
- Géométrie 1, LMAT1141 (1st year, geometry).
- Multilinear algebra and group theory, LMAT1231 (2nd year).
- Mathématiques générales 2, LBIR1200 (2nd year, general mathematics 2).
- Introduction au logiciel MATLAB, LBIR1200 (2nd year, introduction to MATLAB).

2010, 2013, 2014 Courses:

- Cours d’été en mathématiques pour les futurs bacheliers en Sciences économiques et ingénieur de gestion (summer school in mathematics for future bachelors in economics and engineering economics)

Fellowships

Postdoctoral fellowship: FCT - Fundação para a Ciência e a Tecnologia - Portugal.

Community service

- 2012 – 2014 Temporary staff representative
- at the IRMP - Institut de recherche en mathématique et physique - concil.
 - at the school of mathematic concil.
- 2013 Coordinator for a summer school in mathematics (for future bachelors).
- 2016 Co-organizer:
4th Workshop on Categorical Methods in Non-Abelian Algebra, Universidade de Coimbra, Coimbra (Portugal).

Refereeing activities

Reviewer for:

- American Mathematical Society.
- Applied Categorical Structures.
- Cahiers de Topologie et Géométrie Différentielle Catégoriques.
- Journal of Homotopy and Related Structures.
- Quaestiones Mathematicae.

References

Marino Gran

President of the IRMP -
Institut de Recherche
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