

Alexis Langlois-Rémillard

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Research interests

Algebra, mathematical physics, representation theory of algebras, diagrammatic algebras, cellular algebras, Lie (super)algebras, Dunkl operators and Temperley-Lieb algebras.

Education

- 2019- **Ph. D. in Mathematics**, Universiteit Gent
exp. Thesis subject : *Algebraic realization of Dunkl operators*
2023 Advisors : Profs Joris Van der Jeugt and Hendrik De Bie
- 2017- **M. Sc. in Mathematics**, Université de Montréal
2019 Thesis: *Sur la structure cellulaire et la théorie de la représentation des algèbres de Temperley-Lieb à couture*
Advisor: Prof. Yvan Saint-Aubin
- 2014- **B.Sc in Mathematics**, Université de Montréal
2017 *Excellence mention*

Scholarships

- 2020-2023 **FRQNT**¹ Doctoral Research Scholarship (\$ 84 000)
2019-2022 **FWO**² PhD scholarship (€ 96 000)
2017-2018 Alexander-Graham-Bell **NSERC**³ Master's award (\$ 17 500)
2017-2019 **FRQNT** Master's award (\$ 30 000)
Summer 2016 Undergraduate Research Award, **NSERC** and **FRQNT** (\$ 7 625)
Summer 2015 Undergraduate Research Award, **NSERC** (\$ 5 625)

Publications and preprints

Scientific work

Langlois-Rémillard, A. and Saint-Aubin, Y. (2019) The representation theory of seam algebras, *arXiv preprint*, [arXiv:1909.03499](https://arxiv.org/abs/1909.03499)

Popularization work

Boutet, V., Godin, J. and **Langlois-Rémillard, A.** (2017) Excursion typographique : La matrice des fontes, *Accromath*, 12, 26-29. <http://accromath.uqam.ca/archives/>

Langlois-Rémillard, A. *Le Petit Prince et l'algèbre*, Notes from the Margin, Mathematical Society of Canada, Vol XII, 2016 <https://issuu.com/cms-studc/docs/margin-fall2016>

¹Fonds de Recherche du Québec: Nature et Technologies (Québec Research Fund on Natural sciences)

²Fonds Wetenschappelijk Onderzoek - Vlaanderen (The Research Foundations - Flanders)

³National Science and Engineering Research Council of Canada

Academic work experience

- 2016-2018 **Teaching Assistant** at Université de Montréal
Discrete Mathematics, Analysis 1 and Fundamental Mathematics
Animation of exercises sessions for 20-60 students classrooms, office hours for students, invigilated and corrected exams.
- Summer 2016 **NSREC Research internship** with Prof. Yvan Saint-Aubin at UdeM
- Summer 2015 **NSREC Research internship** with Prof. Matilde Lalín at UdeM

Talks and Workshop

Invited seminar talks:

- November 2018 **Seminar: representation theory of algebras**, Université de Sherbrooke
Idempotence, cellularité et algèbres diagrammatiques (invited by Prof. Ibrahim Assem)
- October 2018 **Mathematical physics seminar**, Université de Montréal
Roots of unity and the representation theory of boundary seam algebras
(Invited by Prof. Yvan Saint-Aubin)

Workshop:

- June 2018 **Canadian Mathematical Society Summer Meeting**, Fredericton
Atelier d'enseignement actif (with Marie-Andrée B. Langlois)

Contributed seminar and conference talks:

- June 2019 **Clifford research seminar**, Universiteit Gent
Representation theory and cellular structure of seam algebras
- December 2018 **Séminaire étudiant de mathématique**, Université de Montréal
Colorier une carte, une approche par dessin
- November 2018 **Club mathématique**, Université de Montréal
Huit dames pour un échiquier: introduction échiquéenne à la pensée mathématique, de Gauss à Pólya
- September 2018 **XXXth Meeting on Representation theory of algebras**, Sherbrooke
Cellular structure of boundary seam Temperley-Lieb algebras
- July 2018 **Camp mathématique de l'AMQ**, Dawson College, Montréal
Le carréoussel du géomètre
- June 2018 **Canadian Mathematical Society Summer Meeting**, University of New Brunswick, Fredericton
Bratteli and the morphisms of boundary seam algebras
- May 2018 **XXI^e Colloque ISM**, Université Sherbrooke
Bratteli et les morphismes (semi-)simples de Temperley-Lieb
- November 2017 **Club mathématique**, Université de Montréal
Excursion typographique
- October 2017 **Séminaires étudiants en mathématiques**, Université de Montréal
Algèbres de Temperley-Lieb, une approche cellulaire

Popularization talks:

- November 2018 **Club mathématique**, Université de Montréal
Huit dames pour un échiquier: introduction échiquéenne à la pensée mathématique, de Gauss à Pólya
- July 2018 **Camp mathématique de l'AMQ**, Dawson College, Montréal
Le carréoussel du géomètre
- November 2017 **Club mathématique**, Université de Montréal
Excursion typographique

Leadership and implication

Conference organizer

- 2019 **SAMARI**. One day conference on possibilities after graduation in mathematics. *Co-initiator and co-organizer*
- 2016-2018 **Seminars in Undergraduate Mathematics in Montréal**. Annual provincial undergraduate week-end conference. *President for 2016 2017 and member in 2018 of the organizing committee*
- 2018 **SAPHARI**. One day conference on possibilities after graduation in Physic. *organizer of the mathematics session*
- 2017 **Canadian Undergraduate Mathematics Conference** Annual national undergraduate week conference. *President for the Montréal 2017 edition*

Session and seminars organizer

- 2017-2018 **AARMS-STUDC student poster session**. Co-organizer for 2018 CMS Summer Meeting, University of New-Brunswick, Fredericton and 2017 CMS Winter Meeting, University of Waterloo, Waterloo.
- 2017-2018 **Student seminar in mathematics**, Université de Montréal
- 2015-2017 **Club mathématique**, Université de Montréal

Community service

- 2016-2019 **Student committee** of the Canadian Mathematical Society. *Committee member*: involved in the French translation, and the edition of French article in the annual publication *Notes from the Margin*.
- 2017-2019 **AECMS**: Graduate students association in Université de Montréal. *President* (2018-2019) and *Treasurer* (2017-2018)
- 2014-2019 Students representative on the **departmental assembly** at Université de Montréal: 2014-2016 for undergraduate and 2018-2019 for graduate students.

Popularization

- 2016-2018 **Institut des sciences mathématiques**. I created an activity on tatami tiling in 2016 for the *MathFest* and co-created the activity *Le carrérousel du géomètre* for 2018 festival *Eureka!* at the Science center of Montréal.
- 2018-2019 **L'Axiomatique**. *Corrector-in-chief and writer* for a mathematics student journal at Université de Montréal.
- 2015-2017 **JÉMUM**. *Co-created and co-edited* a student mathematical journal to showcase summer research by undergraduate students.

Languages

- Français**: Native language
- English**: Fluent
- Dutch**: Beginning to learn

Other Interests and Activities

- Chess** I am a Canadian and Québec expert;
- Lifeguard** I taught swimming lessons and was a lifeguard for 6 years from 2011 to 2016 and an instructor from 2013 to 2016. I received a Commonwealth service citation and certificate for my volunteer work in 2015 and 2014 ;