

Alexis Langlois-Rémillard

(+1) 514-432-7844,
alexis.langlois-remillard@umontreal.ca

636 4^e Rang Sud, St-Jean-sur-Richelieu,
J2X 5V1, Québec, Canada

Research Interests

Algebra, representation theory of algebras, diagrammatic algebras, cellular algebras, Temperley-Lieb algebras, Lie algebras and mathematical physics

Education

May 2017-
Present | Master of Science in Mathematics, Université de Montréal
Thesis: *Théorie de la représentation des algèbres de Temperley-Lieb à frontière soudée*
Advisor: Prof. Yvan Saint-Aubin

August 2014-
April 2017 | B.Sc in Mathematics, Université de Montréal
Final report : *Algèbres de Temperley-Lieb à frontière soudée*
Advisor: Prof. Yvan Saint-Aubin

Scholarships

2017-2018 Alexander-Graham-Bell NSERC Master's award (\$ 17 500)
2017-2019 FRQNT Master's award (30 000\$)
Summer 2016 Undergraduate Research Award, NSERC (5 625\$)
Summer 2016 FRQNT supplement to URSA, (2 000\$)
Summer 2015 Undergraduate Research Award, NSERC (5 625\$)

Academic Work Experience

2016-
present | Teacher Assistant at Université de Montréal (UdeM)
Discrete Mathematics (Mat1500), Analysis 1 (Mat1000) and Fundamental Mathematics (Mat1101)
Animation of exercises sessions for ~30 students classrooms, office hours for students, invigilated and corrected exams.

Summer 2016 | NSREC Research internship with Prof. Yvan Saint-Aubin at UdeM
Representation theory : *Boundary seam Temperley-Lieb algebras*
Researched on the structure of the modules for critical cases of the parameter of the algebra, discovered pathological comporment and illustrated them with examples. It was my end of study project. .

Summer 2015 | NSREC Research internship with Prof Matilde Lalin at UdeM
Algebraic number theory : *Higher Mahler measure*
Studied a recent generalization of the Mahler measure and tried to reformulate the proofs

Publications

Popularization work

- *Excursion typographique : La matrice des fontes* with V. Boutet and J. Godin, *Accromath*, Vol. 12, Summer-Fall 2017. <http://accromath.uqam.ca/archives/>
- *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>
- *Introduction à l'algèbre de Temperley-Lieb*, Journal étudiant de l'Université de Montréal, édition 2016-2017

Organization of Conferences

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| 2016-2018 | <p>Seminars in Undergraduate Mathematics in Montreal, Montréal
<i>President (2016-2017) and member (2018) of the organizing committee</i></p> <p>The SUMM are held in January and consist of a weekend of mathematical exposure for students of Montréal and elsewhere held since 2009 in the four universities of Montréal. Respectively 130, 163 and 150 students took part with about 40 talks by them. Organization included : balancing a 7 000\$ budget, collaboration between four universities.</p> |
| June 2018 | <p>Summer meeting of the CMS, Fredericton, NB, Canada
<i>AARMS-CMS Poster session co-organizer</i></p> <p>Organized the session and oversaw the competition for students by faculty members, 9 posters were presented</p> |
| 2016-2017 | <p>Canadian Undergraduate Mathematics Conference, Montréal
<i>President of the organizing committee</i></p> <p>The CUMC is a five days Canadian conference organized by undergraduate students each year since 1994. This edition, 157 students took part and 100 talks were given by them. Organization included : balancing a 30 000\$ budget, arranging a Women in Maths panel and covering the travel of 5 invited plenary speakers from Canada and US.</p> |
| Dec. 2017 | <p>Winter meeting of the CMS, Waterloo, ON, Canada
<i>AARMS-CMS Poster session co-organizer</i></p> <p>12 posters were presented.</p> |

Talks and Workshop

Workshop

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| June 2018 | <p>Canadian Mathematical Society Summer Meeting, Fredericton
<i>Atelier d'enseignement actif (with Marie-Andrée B. Langlois)</i></p> <p>We gave a CMS Student committee workshop for students and faculty members on active learning and flipped classrooms.</p> |
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Talks

- June 2018 | Canadian Mathematical Society Summer Meeting, Fredericton
Bratteli and the morphisms of boundary seam algebras
Talk at the student research session introducing my research
- May 2018 | XXI^e Colloque ISM, Sherbrooke
Bratteli et les morphismes (semi-)simples de Temperley-Lieb
Conference of the Institut des sciences mathématiques aimed at graduate students. Talk introducing recent developments of my research
- March 2018 | SAPHARI, UdeM
L'algèbre pour mieux représenter
Talk presenting Algebra as a mathematical domain in a physics, mathematics and computer science colloquium on opportunities after graduation.
- November 2017 | Club mathématique, UdeM
Excursion typographique
Talk for undergraduate maths students on typography and Bézier curves
- October 2017 | Séminaires étudiants en mathématiques, UdeM
Algèbres de Temperley-Lieb, une approche cellulaire
Talk for graduate maths students on my research
- January 2017 | SUMM, McGill University
25 minutes sous les foncteurs
Talk introducing examples in category theory for undergraduate maths students
- July 2016 | CUMC, Victoria University
Algèbres de Temperley-Lieb pour mathémartistes contemporains
Talk on Temperley-Lieb for undergraduate maths students
- June 2016 | Séminaires étudiants d'été, UdeM
Algèbres à l'ombre des tatamis parfaits
Talk on Tatami-tilings and algebra for other undergraduate student researchers
- January 2016 | SUMM, UQAM
Rush Hour, paradoxe de Braess et théorie des jeux
Talk on game theory for undergraduate students
- June 2015 | Séminaires étudiants d'été, UdeM
Pi, musique et autres (presque) bonnes idées
Talk on mathematical curiosities for other undergraduate student researchers

Implication

Fall 2016- present	Student committee of the Canadian Mathematical Society <i>Committee member</i> Tasks : Editing Notes from the Margin blog and revue (since 2018 edition), organizing special sessions and workshops in CMS meetings, financing student initiatives in Canada
Fall 2017- Present	Graduate mathematics and statistic student association <i>Treasurer</i>
Fall 2017- present	Séminaires étudiants en mathématiques, Montréal, UdeM <i>Co-organizer</i> A bimonthly seminars where graduate students presents their research to their peers.
Fall 2015- Spring 2017	Club mathématiques de l'Université de Montréal <i>Co-organizer</i> Weekly talks given by faculty members and graduate students for the undergraduate students.
Fall 2015- Spring 2017	Journal étudiant en mathématiques de l'Université de Montréal <i>Initiator and editor</i> Part of the team that created the journal. 2016 edition was a newsletter to showcase possible summer internship projects. 2017 edition was an online journal for undergraduate student researchers at UdeM. We reviewed, edited and corrected articles submitted and helped the participants with their \LaTeX by giving a workshop. The project continued in 2018 and plan to go on for 2019.

Languages

Français: Native language
English: Fluent (reading and writing); good (speaking)

Interests and Activities

Chess	I am a Canadian and Québec expert;
Literature	I am involved in some reading clubs and was jury for the Prix littéraire des collégiens, 2013,2014 and the special 2003-2013 edition;
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 certificate for my volunteer work;
Outreach	I designed and animated two activities for children on the behalf of the Institut des sciences mathématiques (ISM) : Square wheels for the Eurêka science festival (June 2018) and Tatami-tiling for the Mathfest (May 2016);
Tutoring	I was a tutor in Mathematics, French, Philosophy and English in 2013-2014 for my cégep.