

Dr. Damien Tageddine

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RESEARCH INTERESTS My research interests can be described by the broad framework of (quantized) geometry with respect to a small parameter \hbar . Specifically, I work on building bridges between noncommutative differential geometry, deformation quantization and C^* -algebras on one hand, and finite dimensional approximations of differential operators and of algebraic structures on the other hand. I'm also interested in topics that have close links with mathematical physics.

WEBSITE <https://math.mcgill.ca/dtageddine/>

EDUCATION **McGill University**

Ph.D. in Mathematics (defended in July 2023)

- Thesis title: Noncommutative Differential Geometry and Infinitesimal Spaces
- Advisor: Prof. Jean-Christophe Nave

École Polytechnique de Montréal

M.Sc. in Applied Mathematics, August 2018

B.A. in Engineering Physics, May 2017

Classes Préparatoires du Lycée Louis-Le-Grand

Classes de Mathématiques Spéciales (MP), 2011-2013

Classes de Mathématiques Supérieures (MPSI), 2010-2011

PUBLICATIONS, PREPRINTS, AND THESIS

D. Tageddine, J-C. Nave, *Spectral truncation, Clifford algebras and harmonic polynomials*, in preparation (2024).

M. Khalkhali, D. Tageddine, *Spectral triples on the Berkovich line*, in preparation (2024).

D. Tageddine, *Noncommutative Differential Geometry and Infinitesimal Spaces*, PhD's Thesis, defended in July 2023.

D. Tageddine, J-C. Nave, *Statistical Fluctuation of Infinitesimal Spaces*, submitted, arXiv:2304.10617, submitted.

D. Tageddine, J-C. Nave, *Noncommutative Differential Geometry on Infinitesimal Spaces*, submitted, arXiv:2209.12929, submitted.

Y-M. Law, D. Tageddine, S. Dufour, *A 3-D Numerical Modeling for the Magnetization of Superconductors Using a Local Discontinuous Galerkin Finite Method*, submitted to IEEE Transactions on Magnetics (2018).

D. Tageddine, *Conception d'un schéma adaptatif d'intégration en temps appliqué à la discrétisation par éléments finis des équations de Maxwell pour l'étude de la supraconductivité*, Master's Thesis (2018).

RESEARCH TALKS *La déformation par quantification de Berezin est une théorie de discrétisation*, Journée International Research Lab (IRL) CRM-CNRS, Université de Montréal, Canada. (February 2024)

Spectral triples on the Berkovich line, Workshop in Noncommutative Geometry, Fields Institute, Canada. (December 2023)

Noncommutative differential geometry and discrete spaces, Foundation of Computational Mathematics (FoCM), Sorbonne Université, France. (June 2023)

Noncommutative differential geometry on discrete spaces, Canadian Mathematical Society (CMS), Ottawa University, Canada. (June 2023)

On Sequences of Spectral Triples Associated to Triangulations and Their Convergence, Canadian Operator Symposium 2023 (COsy 2023), University of Western Ontario, Canada. (May 2023)

Noncommutative differential geometry on infinitesimal spaces, Geometry and Algebra Seminar (GAS), University of Toronto, Canada. (November 2022)

From Representation Theory to Geometrical Discretizations, Canadian Applied and Industrial Mathematics Society (CAIMS), UBC, Canada. (June 2022)

Noncommutative Differential Geometry of Matrix Algebras, Centre Inter-universitaire de Recherche en Géométrie et Topologie (CIRGET), UQAM, Canada. (March 2021)

Resummation of the Moyal Product, Seminars in Algebra Geometry and Mathematical Physics, McGill University, Canada. (October 2020)

TEACHING EXPERIENCE	Winter	2024	Lecturer, ODE for Engineers
	Fall	2023	Lecturer, Intermediate Calculus
	Winter	2022	Teaching Assistant, Honours Ordinary Differential Equations
	Winter	2021	Teaching Assistant, Honours Analysis 2
	Fall	2019	Teaching Assistant, Calculus 1
	Winter	2018	Lecturer, Calcul Scientifique pour Ingénieurs
	Fall	2017	Lecturer, Calcul Scientifique pour Ingénieurs

STUDENT
CO-SUPERVISION Armen Chahmirian. Dirac operators on triangulations. Internship at McGill University, Summer 2023. Co-supervised with Prof. J-C Nave.

William Holman-Bisseger. Discrete Leibniz rule. Internship at McGill University, Summer 2021. Co-supervised with Prof. J-C Nave.

Yuki Zhang. Introduction to the Multiplier Method via the N-Bodies Problem. Internship at McGill University, Summer 2019. Co-supervised with Prof. J-C Nave.

ACADEMIC ACTIVITIES	2019-2023	Co-organizer of the CRM Applied Mathematics Seminar, at McGill University, with Prs. J-P. Lessard (McGill), T. Hoheisel (McGill), S. Brugiapaglia (Concordia).
	2019-2021	Organizer of the McGill Seminars for Graduate Students in Applied Mathematics.
HONORS AND AWARDS	2023	Alexis and Charles Pelletier Fellowships in Mathematics
	2022	ISM Scholarship for Outstanding PhD Candidate
	2019-2021	ISM Graduate Scholarship
	2019	Graduate Excellence Awards (McGill University)
	2015	Bourse d'Unité de Participation et d'Introduction à la Recherche (École Polytechnique de Montréal)
UNDERGRAD RESEARCH EXPERIENCES	2016 - 2017	Détermination et propagation d'orbites de satellites . Advisor: Nicolas Godbout, Département de Génie Physique, Canadian Spacial Agency.
	2016	Méthode d'analyse non-normale appliquée à l'étude de stabilité d'écoulements en fusion par confinement inertiel. Advisor: J-M Clarisse, Expert CEA, Commissariat à l'Energie Atomique, Paris, Saclay.
RELEVANT SKILLS	Languages:	English, French
	Programming:	Fortran90, C, Julia, Python, Matlab