Luuk Verhoeven

Curriculum Vitae

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University of Western Ontario

Education

2019–current **Ph.D. Candidate**, *University of Western Ontario*, London, Ontario, *Supervisor: prof. Khalkhali*.
I am currently in the fourth year of a Ph.D. in mathematics, focussing on noncommutative geometry and random matrix theory. Expected graduation: **August 2023**

2016–2019 **Master of Mathematics (mathematical physics specialization)**, *Radboud University*, Nijmegen, *Graduated Summa Cum Laude*.

2013–2016 **Radboud FNWI Honours**, *Radboud University*, Nijmegen, *Grade: 9*.
The Honours programme provides additional experience with scientific work. It consists of writing a project proposal in an interdisciplinary setting and an extended Bachelor thesis, two months of which were spent at the University of Western Ontario, London, Canada with Dr. M. Khalkhali.

2012–2016 **Bachelor of Physics**, *Radboud University*, Nijmegen, *Graduated Summa Cum Laude*.

2012–2016 **Bachelor of Mathematics**, *Radboud University*, Nijmegen, *Graduated Summa Cum Laude*.

Publications

2022 **Riemannian embeddings in codimension one as unbounded KK-cycles**, W. D. van Suijlekom, & L. S. Verhoeven, *(in preparation, available on arXiv:2212.08053)*

2022 **From noncommutative geometry to random matrix theory**, H. Hessam, M. Khalkhali, N. Pagliaroli, & L. S. Verhoeven, Journal of Physics A: Mathematical and Theoretical, 55(41), 413002.

2022 **Immersions and the unbounded Kasparov product: embedding spheres into Euclidean space**, W. D. van Suijlekom, & L. S. Verhoeven, Journal of Noncommutative Geometry 16 (2022), no. 2, pp. 489–511.

Master thesis

title *An Unbounded Representative for the Shriek Class of $S^1 \hookrightarrow \mathbb{R}^2$.*

supervisor Dr. W.D. van Suijlekom

description We construct an unbounded representative for the shriek class $\iota_! \in KK_0(C(S^1), C_0(\mathbb{R}^2))$ of the immersion $\iota : S^1 \hookrightarrow \mathbb{R}^2$. In particular we show that $\iota_!$ functions like a dual Dirac element which eliminates the normal direction in a suitable sense. This provides a start to find a result analogous to the KK-theoretic factorization of submersions by Kaad and Suijlekom.

Teaching experience

2021 Fall Term — **Calculus Instructor**, *University of Western Ontario*, London, Ontario.
As instructor I was responsible for preparing and delivering lectures to supplement online material, help manage the online homework environment (Mobius) and help write the exams.

2019–current — **Teaching Assistant**, *University of Western Ontario*, London, Ontario.
The TA duties consist primarily of running tutorial sessions and grading exams or homework. I also have experience with Webwork.

2016–2017 — **Computer Science Teacher**, *Stedelijke Scholengemeenschap Nijmegen (SSgN)*, Nijmegen.
I taught Computer Science to the 5 HAVO, 5 VWO and 6 VWO classes, equivalent to grades 11, 12 in the American system.
The content of the course was SQL, basic database management, PHP and PHP-MySQL.

2014–2018 — **Teaching Assistant**, *Radboud University*, Nijmegen.
As a teaching assistant at the Radboud University I was responsible for tutorials and grading. I assisted for the courses Introductory Statistics (2018), Curves and Surfaces (2015, 2018), Topology (2016), Discrete Mathematics (2014) and several general review sessions for bachelor students in 2017-2018.

Additional experience and Awards

2022–current — **Graduate Seminar Organization**, *University of Western Ontario*, London, Ontario.
As a team of four graduate students we restarted the in-person graduate seminar of the mathematics department.

2021 — **Graduate Student Teaching Award**, *University of Western Ontario*, London, Ontario.
Nominated based on reviews by the academic staff.

2015–2016 — **Student Member of Education Committee**, *Radboud University*, Nijmegen.
As student member of the Education Committee I was involved in the feedback and evaluation process of courses and involved in decisions about the programme such as the transition to English as the main language.

2016–2018 — **Instructor for NLT**, *Radboud University and SSgN*, Nijmegen.
NLT is a initiative by several local high schools to teach advanced subjects such as robotics and statistics at the Radboud University. I provided lectures and assisted with tutorials and experiments.

2015–2018 — **Invited Guest Teacher (High school level)**, *Stedelijke Scholengemeenschap Nijmegen (SSgN)*, Nijmegen.
I provided lectures on special relativity (2 lessons program) and the LHC (1 lesson) on several occassions.

2016 — **Top three project and presentation at the Student Research Conference**.
Presentation on Honours project: Hearing the Shape of a Trapezoid Drum.

2013 — **Jong Talent Aanmoedigingsprijs (Young Talent Encouragement Award)**.
Awarded by the Koninklijke Hollandse Maatschappij der Wetenschappen for the highest average grade in the first year of mathematics at the Radboud.

Languages

Dutch — **Native speaker** — *Dutch is my native tongue.*

English — **Near native** — *I have passed the CAE exam at C2 level (2012) and have since lived in Canada for over three years.*

German — **Reading: B2, writing and speaking: B1** — *I am comfortable reading German but not speaking or writing.*