

Curriculum Vitae

DI. Mag.art. Paul Großkopf PhD. BSc.

*1st July 1993 in Bregenz, Austria

Austrian Citizen

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Education

Doctorate at Département de Mathématique at Université Libre de Bruxelles 2020-2024
under the supervision of Prof. Joost Vercruysse and Prof. Alexis Virelizier (co)
PhD thesis: *Hopf categories, Frobenius categories and Homotopy Quantum Field Theories*

Master (DI) in Technical Mathematics at Technical University Vienna, with honors 2018-2020
Master thesis: *Intersections of the Twin Dragon with rational lines* (English)

Master (Mag.art) in Educational Studies with the subjects mathematics and music 2012-2017
at Paris-Lodron-University and University Mozarteum Salzburg, with honors
Diploma thesis: *Petruschka by Igor Strawinsky, music analysis and interpretation in music education* (German)

Bachelor in Mathematics at PLUS, with honors 2012-2016
Bachelor thesis: *Factorials and generalization in various number fields* (German)

Gymnasium in Bregenz, with honors 2003-2011

Working experiences

Postdoctoral fellowship of the FWA at University of Oxford since Oct 2024
Teaching activities (voluntary) at ULB Oct 2021- Sep 2023
Teaching assistant at the institute for discrete mathematics and geometry at TU Vienna Sep 2018- Feb 2020
High school teacher for mathematics and music at GRG21 Franklinstraße, Vienna Sep 2017- Aug 2018
as well as GRG21 Ödenburgerstraße, Vienna
Chairman of the Austrian Student Union (ÖH) at Mozarteum Salzburg Mar 2016- Jun 2017
as well as (deputy) mandate at the federal students parliament May 2017- Jun 2019
Tutor at Mozarteum supporting freshmen Sep 2015- Feb 2017

Publications

Free and co-free construction for Hopf categories, with Joost Vercruysse, *Journal of Pure and Applied Algebra* **228** (10), 2024
Intersecting the Twin Dragon with rational lines, with Shigeki Akiyama, Benoît Loridant, Wolfgang Steiner, *Journal of Fractal Geometry*, 2024

Current projects

The Hopf category of Frobenius algebras, with Joost Vercruysse (currently under review)
Open/Closed 2D HQFTs and (G, V) -Frobenius categories
Classification of 2D HQFTs via crossed module structures, with Alexis Virelizier
Representations of (G, V) -Hopf categories and 3D TQFTs/HQFTs

Grants obtained

Postdoctoral fellowship, awarded by the FWA: 1-2 years (29400 £ annually, 1500 £ bench fee, 3000 £ for College Affiliation)

FRIA scholarship, awarded by the FNRS: 4 years (~32 000 € annually, 2500 € bench fee)
Credit séjour à l'étranger, awarded by the FNRS for the research stay at the Departement of mathematical physics of University of Vienna (winter semester 23/24), with Nils Carqueville (~2800 €)

Contributed Talks at Conferences and Workshops

<i>Free and Co-free constructions for Hopf categories</i> , at Second Antipode Workshop Université Libre de Bruxelles, Belgium	12.09.2022
<i>Of shapes and numbers</i> , at Bruxelles Summer School of Mathematics (BSSM) Université Libre de Bruxelles, Belgium	01.09.2022
<i>Free and Co-free constructions for Hopf categories</i> , at Conference Bucharest Institute of Mathematics of the Romanian Academy, Romania	27.07.2022
<i>Multi-object structures and TQFTs/HQFTs</i> , at PhD Day in Liège, University of Liège, Belgium	13.05.2022
<i>The Hopf category of Frobenius algebras</i> , at Antwerp Colloquium, University of Antwerp, Belgium	18.02.2022
<i>The Hopf category of Frobenius algebras</i> , at CT 20→21 (conference), Università degli Studi di Genova in Genoa, Italy	03.09.2021

Participation at Conferences, Workshops and Seminars

<i>Toposes in Mondovi</i> (summer school), Grothendieck Institute, Italy	03.09.-06.09.2024
<i>(∞, n)-categories and their applications</i> , University of Utrecht, Netherlands	15.04.-19.04.2024
<i>XII International Symposium on Quantum Theory and Symmetries</i> , Czech Technical University Prague, Czech Republic	23.-28.07.2023
<i>Higher Structures in Functorial Field Theory</i> , Universität Regensburg, Germany	14.-18.08.2023
<i>Second Antipode Workshop</i> , Université Libre de Bruxelles, Belgium	12.09.-13.09.2022
Conference on Hopf algebras and monoidal categories, Romanian Academy in Bucharest, Romania	27.07.-29.07.2022
<i>PhD Day in Liège</i> , University of Liège, Belgium	13.05.2022
<i>CT 20→21</i> (conference), Genova, Italy	30.08.-03.09.2021
<i>Topological field theories and factorization homology</i> (masterclass), University of Copenhagen, Denmark	23.08.-27.08.2021
<i>Perspectives on quantum link homology theory</i> (student workshop and conference), University Regensburg, Germany	09.08.-15.08.2021
Workshop on homotopy theory and group theory, CRM in Barcelona, Spain	05.07.-09.07.2021

Exercise classes taught

Calcul différentiel et intégral (for Physics), at ULB	SS 23
Category theory (for Mathematics), at ULB	WS 22/23
Calcul différentiel et intégral (for Physics), at ULB	SS 22
Mathématiques (for Geology and Biology), at ULB	SS 22
Mathématiques discrète (for Computer Science), at ULB	WS 21/22
Mathematik 1 (for Engineering), at TU Vienna	WS 18/19- SS 20

Additional skills

Mother tongue German (C2), foreign language skills in English (C1), French (B2)
 Various musical instruments (trombone, piano, singing)