

Oisín Flynn-Connolly

Curriculum Vitae

✉ oisinflynnconnolly@gmail.com

🌐 flynncoo.github.io

Citizenship: Irish

Employment

2024– **Postdoctoral researcher**, *Leiden University*, Group leader: Henning Basold

Education

2021–2024 **PhD in mathematics**, *Université Sorbonne Paris-Nord*, Supervisor: Grégory Ginot

2019–2020 **M2 Mathematics**, *Université Paris-Saclay*, (Mention: Bien)

2015–2019 **B.A. (Hons.) in mathematics**, *Trinity College Dublin*, (1.1 & gold medallist)

Research interests

- Category theory in optimization and theoretical computer science
- Operadic calculus, higher structures and homotopical algebra.
- Categorical probability theory
- Homotopy theory (rational and p -adic).
- Combinatorics and number theory

Publications

- 2025 Flynn-Connolly, O.: *On associative and commutative differential graded algebras in positive characteristic (Mostly Expository)*, *Mathematical Intelligencer*.
- 2025 Flynn-Connolly, O.: On the divisibility of Fibonacci numbers, *Integers: Electronic Journal of Combinatorial Number Theory*
- 2025 Flynn-Connolly, O.: An obstruction theory for strictly commutative algebras in positive characteristic, *Algebraic and Geometric Topology (accepted)*
- 2024 Dotsenko, V., Flynn-Connolly, O.: Three Schur functors related to pre-Lie algebras, *Mathematical Proceedings of the Cambridge Philosophical Society*

Preprints

- Flynn-Connolly, O., Moreno-Fernández, J., Wierstra, F.: *A recognition principle for iterated suspensions as coalgebras over the little cubes operad*, submitted
- Flynn-Connolly, O., Moreno-Fernández, J.: *Higher order Massey products for algebras over algebraic operads*, submitted.
- Flynn-Connolly, O.: *Simplicial coendomorphism operads and coalgebras*, submitted.
- Basold, H., Flynn-Connolly, O., Ford, C., Wang, H.: *Central Limits via dilated categories*, submitted

- Flynn-Connolly, O.: *A p -adic de Rham complex*

Available on request but not submitted

- Flynn-Connolly, O.: *A higher Hochschild-Konstant-Rosenberg Theorem and the Deligne conjecture*, available on request
- Flynn-Connolly, O.: *Homotopically, E_∞ algebras do not generalise commutative dg-algebras*, available on request
- Flynn-Connolly, O., Moreno-Fernández, J., Muro, F.: *Determinant Massey products*, available on request.
- Basold, H., Flynn-Connolly, O., Ford, C. : *A transfinite Banach fixed point theorem for lattice valued metrics* Rougher draft but available on request

In progress

- Flynn-Connolly, O., Moreno-Fernández, J., Wierstra, F.: *Homotopy operations from the little cubes operad*
- Basold, H., Flynn-Connolly, O., Ford, C. : *Coalgebras in abelian groups*

Teaching

- Autumn 2025 **Mathematical Structures in Computer Science (lecturer and TA)**, *Leiden University*
- Spring 2022 **Calculus II (TA)**, *Université Sorbonne Paris Nord*
- Spring 2022 **Euclidean and non-Euclidean geometry (TA)** , *Université Sorbonne Paris Nord*
- Autumn 2018 **Maths for STEM: Trinity Access Program (TA)**, *Trinity College Dublin*
& Spring
2019

Students

- Spring 2025 **Jamie Wiskerke**, *Leiden University*, Bachelor Thesis, "Probability Theory in Diffeological Spaces" (along with Henning Basold and Rajat Hazra)

Research Talks

- Nov 2025 *Determinant Massey Products*, Topology Seminar, Stockholm University
- Mar 2025 *Co-Eilenberg-Moore categories over operads*, NetTCS meeting, University of Twente
- Feb 2025 *Corecognition for iterated suspensions*, seminar of Leiden University
- Oct 2024 *Corecognition for iterated suspensions*, Rencontre 2024 de Topologie algébrique (the French annual topology conference), Université de Toulouse
- Sep 2024 *Strictly commutative algebra in positive characteristic*, seminar of Université de Lille
- Sep 2024 *Strictly commutative algebra in positive characteristic*, seminar of Université de Toulouse
- Aug 2024 *Higher invariants in homotopy theory*, 37th Annual Meeting of the Irish Mathematical Society, Queen's University Belfast

- Feb 2024 *Strictly commutative algebra in positive characteristic*, seminar of Seville University
- Jan 2024 *Strictly commutative algebra in positive characteristic*, seminar of Stockholm University
- Nov 2023 *The geometry of iterated suspensions*, seminar of Université de Lille
- Nov 2023 *p-adic homotopy theory*, seminar of Universidad de Malaga
- Oct 2023 *The geometry of iterated suspensions*, seminar of Université Sorbonne Paris Nord

Poster Presentations

- Aug 2023 *Corecognition for iterated suspensions*, 36th Annual Meeting of the Irish Mathematical Society, University of Limerick
- July 2023 *Corecognition for iterated suspensions*, Young Topologists Meeting, EPFL, Lausanne

Expository Talks

- Mar 2025 *Homotopy Probability Theory (3 talk minicourse)*, Leiden STyLo probability seminar
- Apr 2024 *Groebner bases and automated theorem-proving*, PhD student seminar of USPN
- Nov 2022 *Introduction to infinity-categories*, topology PhD student seminar of USPN

Academic Service

Refereed for *Archiv der Mathematik*. Reviewed for zbMATH Open. Contributed sequences to OEIS.

Other Work Experience

- Summer 2018 **Research Intern**, *University College Dublin*, Project “Random matrices, genus expansions and the symmetric group”, Supervisor: Neil O’Connell. Funded by UCD Summer Research Scholarship.
- Summer 2017 **Research Intern**, *Trinity College Dublin*, Project “The category of quasi-parabolic vector bundles”, Supervisor: Sergey Mozgovoy Funded by Hamilton Trust Summer Internship Fund.
- 2016–2019 **Trainer**, *Olympiad camps*
- 2016–2018 **Secretary**, *Dublin University Mathematical Society*
- 2016–2019 **Teaching Assistant**, *School of Mathematics, Trinity College Dublin*
- 2020–2022 **High school maths tutor**, *Trinity Academy*

Selected Awards

- 2021 **Marie Skłodowska-Curie Cofund PhD Fellowship**
- 2017 **Trinity Foundation Scholarship** ("Schols")
- 2017 **Irish Intervarsity Mathematics Competition** – 1st(team), 2nd (individual).
- 2014 & 2015 **International Mathematical Olympiad** – Represented Ireland (awarded HM)

Language Skills

English Mother tongue

French Professional capacity

■ Programming Skills

Typesetting \LaTeX , HTML (intermediate), CSS (beginner)

Scientific Computation Python, Sage (intermediate), Haskell, C, C++ (beginner)