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 & Spring 2019 **Maths for STEM: Trinity Access Program (TA)**, *Trinity College Dublin*

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 talks)*, 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** – 1^{st}(team), 2^{nd} (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)