

# 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

- 2026 Flynn-Connolly, O.: An obstruction theory for strictly commutative algebras in positive characteristic, *Algebraic and Geometric Topology*  
2025 Flynn-Connolly, O.: On associative and commutative differential graded algebras in positive characteristic, *Mathematical Intelligencer*.  
2025 Flynn-Connolly, O.: On the divisibility of Fibonacci numbers, *Integers: Electronic Journal of Combinatorial Number Theory*  
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,  $E_\infty$  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<sup>st</sup>(team), 2<sup>nd</sup> (individual).  
2014 & 2015 **International Mathematical Olympiad** – Represented Ireland (awarded HM)

### Language Skills

English Mother tongue

French Professional capacity

## Programming Skills

Typesetting  $\text{\LaTeX}$ , HTML (intermediate), CSS (beginner)

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