

Neil DOBBS

Born 26th January 1980, Waterford, Ireland
Irish nationality

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Overview

Academic mathematician in UCD, sole organiser of the fastest growing Mathematics Enrichment programme in the country. Chair of the Irish Mathematics Trust. Excellent researcher, with many top-level publications. Engaging lecturer teaching at all levels. Former international orienteer.

STEM Engagement Activities

- 2019- — Sole organiser of **UCD Junior Mathematical Enrichment programme** with regular, stimulating classes in UCD each Saturday. It was in nascent form when I took it on, with a handful of students. Now we have about 100 students from diverse backgrounds attending each week. Close to 50 schools in the greater Dublin region are represented.
Recruited and trained tutors to lead mathematical enrichment activities. The tutors were mathematically-talented university undergraduate and graduate students.
Limited seed funding to hire tutors and get the programme off the ground in 2019 was obtained from SFI.
I repeatedly obtained external sponsorship in subsequent years, to enable the programme to continue and grow. Over 40,000 euros in total.
- 2024- — **Chair of Irish Mathematical Trust**, the charity whose members are mathematicians (academic and otherwise) involved in Olympiad training and extracurricular mathematics activities for secondary school students.
Fundraising officer from 2022, successfully raised 17,000 euros in funding for extra training camps etc.
Elected Chair at the 2024 AGM in recognition of the outstanding voluntary work I do in STEM engagement.
- Nov 2021 — **Team Leader** for the Irish Team of secondary school students competing in the Baltic Way International Maths Competition in Reykjavik, Iceland.
- 2019- — Occasional master-classes for secondary school students in the Irish Maths Olympiad Squad.
- 2018-19 — Organiser of the maths workshops of UCD Science Transition Year Workshop Week.
- 2017 — Led a 2017 UCD Science Transition Year Workshop.
- 2017 — In conjunction with a research workshop I organised, I gave a talk to Transition Year students in Gairmscoil Einne, Inishmore, Dec 2017.
— Volunteer, UCD Maths, Stats and BAFS Open nights.
- 2019- — Life member of Irish Mathematical Society.

Orienteering

Member of Irish orienteering team at World Champs in 2003,'04,'06,'07,'08,'09,'10,'13. Organised events in France, Ireland, USA and Switzerland. Relay planner (and mapper) for the Irish Orienteering Championships in 2023. Main organiser for 2011 US Team Trials in New York. Irish Team Leader at 2010 World University Champs in Sweden.

Recipient of Orienteering USA Golden Troll Award *recognizing those individuals who have provided **exceptional service** to the sport of orienteering.*

Mentor to younger Irish orienteers.

2015-2016 — **Coach** *Projet sCOOL*. Developing and teaching orienteering classes in schools in Geneva for 8-12 year olds. Two five-day programmes.

Academic Career

2017- — **Lecturer**, University College Dublin, Ireland.

2014-2016 — **Maître Assistant**, University of Geneva, Switzerland.

2012-2014 — **Postdoctoral Fellow**, University of Helsinki, Finland.

2010-2012 — **Goldstine Fellow**, Business Analytics and Math. Sciences, IBM, New York.

2008-2010 — **Postdoctoral Fellow**, KTH, Stockholm.

Göran Gustafsson Foundation Fellowship (2008-09).

K&A Wallenberg Foundation Fellowship (2009-10).

2007-2008 — **Postdoc**, IMPAN, Poland. Funded by EU training network CODY.

2006-2007 — **ATER** at Université Paris-Sud. Research and teaching position.

2003-2006 — **Doctorate** at Université Paris-Sud. French government grant.

2003-2006 — **Tutor**. Moniteur at Université Paris-Sud.

Education

2003-2006 — **PhD in Dynamical Systems**, supervisor: J. Graczyk, Uni. Paris-Sud, Orsay.

2003-2006 — **Teacher training**. Moniteur at Université Paris-Sud.

2002-2003 — **DEA Maths Pures**, Université Paris-Sud.

2002 — **Scuola Matematica Interuniversitaria**, Italy. Summer school. Five weeks.

1997-2001 — **B.A. Maths**, Trinity College, Dublin, Ireland. First class honours.

1997 — Leaving Certificate, grade 580/600, Ireland.

Academic Fellowships, Awards and Funding

2023 — **Visiting professorship**, Université Paris-Est, France.

2018 — **Visiting professorship**, Université Paris-Est, France.

2010 — **Herman Goldstine Fellowship**, IBM Research, New York.

2009 — **Göran Gustafsson Fellowship**, Sweden.

2008 — **Knut and Alice Wallenberg Fellowship**, Sweden.

2001 — **Gold Medal** on graduating, Trinity College, Dublin.

1999 — **Trinity Foundation Scholarship**: First place in TCD Schol. Exams.

1997 — Member of Irish Team, 38th International Mathematical Olympiad, Argentina.

Teaching

- **Highlights:** Fully redesigned advanced Stochastic Analysis module.
Created two research-informed masters-level courses in Dynamical Systems.
Fully redesigned and lectured History of Mathematics module.
- 2017- — **UCD Lecturer and Module Coordinator** Twelve different modules including Linear Algebra, Multivariable Calculus, Maths for Agriculture II, Differential Geometry, Functional Analysis, Introduction to Complex Dynamics.
- 2015-2016 — **Tutor** *Math. Methods for Physicists*, Univ. Geneva.
- 2015-2016 — **Coach** *Projet sCOOL*. Developing and teaching orienteering classes in schools in Geneva for 8-12 year olds. Two five-day programmes.
- 2014 — **Lecturer** *One-dimensional dynamics*. University of Helsinki.
- Nov 2007 — **Graduate course**, Universidad Católica del Norte, Chile.
Positive Lyapunov exponent in one-dimensional dynamics. Five lectures, 1h30 each.
- 2006-2007 — **ATER** at Université Paris-Sud. Teaching assistant/tutor.
Probability, Statistics (y1), Geometry (y4).
- 2003-2006 — **Moniteur** at Université Paris-Sud. Teaching assistant/tutor.
2003-04 Probability, Statistics (y1), Analysis (y2).
2004-05 Analysis (y2). 2005-06 Calculus (y1), Projet Professionnel (y1).
- 1999-2001 — **Tutor** at Trinity College, Dublin.

Organisation of Scientific Activities

- Workshop organiser, *Key Lemmas in Analysis and Dynamics*, UCD, January 2023.
- Workshop organiser, *Dynamical Systems*, Inishmore, December 2017.
- BIRS-Oaxaca conference organiser, *Analysis and Dynamics*, September 2016.
- Workshop organiser, *Entropy and Dimension sur Arve*, December 2015.
- Co-organiser of 2013 *Postdoc Seminar Series*, University of Helsinki.

Colloquia and Seminars

Seminars, conference talks and colloquia in the following countries:

Ireland	Finland	Sweden	Chile	Singapore	Brazil	UK	Poland	Italy
Israel	France	Portugal	Spain	Switzerland	Canada	USA	Austria	Japan

Peer-reviewed research publications

- 2023 — (**Dobbs, N.**, Todd, M.) Free energy and equilibrium states for families of interval maps . *Memoirs of the AMS 2023; Volume 286, Number 1417*.
Note, this is an extremely prestigious monograph series.
- 2023 — (**Dobbs, N.**, Graczyk, J. Mihalache, N.) Hausdorff Dimension of Julia Sets in the Logistic Family. *Communications in Mathematical Physics*. **399** (2023), 673–716.
- 2021 — (**Dobbs, N.**, Korepanov, A.) On the timescale at which statistical stability breaks down. *Ann. Inst. H. Poincaré C, Anal. non linéaire*. 38 (2021), no. 1, pp. 175–199
- 2021 — (**Dobbs, N.**) Knobbly but nice. *Erg. Th. and Dyn. Sys.* **41(7)** (2021), 2016–2022.

- 2019 — (Dobbs, N., Mihalache, N.) Diabolical entropy. *Communications in Mathematical Physics*. **365** (2019), 1091–1123.
- 2017 — (Dobbs, N.) Dense yet elementary. *Mathematical Intelligencer* **39(2)** (2017), 55–58.
- 2016 — (Dobbs, N., Stenlund, M.) Quasistatic dynamical systems. *Ergodic Theory and Dynamical Systems* **37** (2017), 2556–2596.
- 2016 — (Dobbs, N.) Line, spiral, dense. *L'Enseignement Mathématique* **62** (2016), 91–107.
- 2015 — (Dobbs, N.) Pesin theory and equilibrium measures on the interval. *Fundamenta Mathematicæ* **231** (2015), no. 1, 1–17.
- 2015 — (Dobbs, N.) Perturbing Misiurewicz parameters in the exponential family. *Communications in Mathematical Physics* **335** (2015), no. 2, 571–608.
- 2014 — (Dobbs, N.) On cusps and flat tops. *Ann. Inst. Fourier* **64(2)** (2014), 571–605.
- 2013 — (Dobbs, N., Nowicki, T., Świrszcz, G.) Outer billiard around a curvilinear triangle with a fixed diameter. *Publicacions Matemàtiques, “New Trends in Dynamical Systems” Proceedings*, 179–194.
- 2013 — (Dash, S., Dobbs, N., Günlük, O., Nowicki, T., Świrszcz, G.) Lattice-free sets, multi-branch split disjunctions, and mixed-integer programming. *Math. Program., Ser. A* (2013).
- 2013 — (Bieńkowski, M., Byrka, J., Chrobak, M., Dobbs, N., Nowicki, T., Sviridenko, M., Świrszcz, G., Young, N.) Approximation Algorithms for the Joint Replenishment Problem with Deadlines. *ALP, Part I, 135–147, Lecture Notes in Comp. Sci* 7965.
- 2012 — (Dobbs, N.) Measures with positive Lyapunov exponent and conformal measures in rational dynamics. *Trans. Amer. Math. Soc.* **364** (2012), 2803–2824.
- 2011 — (Dobbs, N.) Nice sets and invariant densities in complex dynamics. *Math. Proc. Camb. Phil. Soc.* **150**, No. 1, 157–165 (2011).
- 2009 — (Dobbs, N.) Renormalisation-induced phase transitions for unimodal maps. *Communications in Mathematical Physics*, **286**:377–387, 2009.
- 2008 — (Dobbs, N., Skorulski, B.) Non-existence of absolutely continuous invariant probabilities for exponential maps. *Fundamenta Mathematicæ*, **198(3)**:283–287, 2008.
- 2007 — (Dobbs, N.) Visible measures of maximal entropy in dimension one. *Bull. Lond. Math. Soc.* **39** (2007), no. 3, 366–376.
- 2007 — (Dobbs, N.) Expanding cocycles for interval maps. *C. R. Math. Acad. Sci. Paris* **345** (2007), no. 1, 39–44.
- 2006 — (Dobbs, N.) Hyperbolic dimension for interval maps. *Nonlinearity* **19** (2006), no. 12, 2877–2894.