

Professional Experience

2021 –	Full Professor of Chemistry: Colorado State University Head of Organic Chemistry: Colorado State University
2018 – 2021	Associate Professor: Colorado State University
2014 – 2017	Associate Professor in Organic Chemistry: University of Oxford
2010 – 2014	University Lecturer in Organic Chemistry: University of Oxford
2010 – 2017	Tutorial Fellow in Organic Chemistry: St Hilda's College, Oxford
2009 – 2010	Fulbright UK-US Distinguished Research Fellow: UCLA with Prof. K. N. Houk
2007 – 2009	Junior Research Fellow: St Catharine's College, Cambridge

Education

2005 – 2008	PhD in Chemistry, University of Cambridge with Prof. Jonathan M. Goodman
2000 – 2004	MA MSci Natural Sciences, Trinity Hall, University of Cambridge 1st class degree, ranked top in the University; Rafael Prize for Organic Chemistry; Trinity Hall prize in Natural Sciences

Recent Awards & Honors

2022-2024	Co-chair, Gordon Conference on Computational Chemistry
2021	Tetrahedron-Chem, Editorial Advisory Board
2019	Fellow of the Royal Society of Chemistry (FRSC)
2018	<i>Cell: Trends in Chemistry</i> Editorial Board
2017	<i>Nature Journals</i> Outstanding Reviewer
2016	<i>Chem. Soc. Rev.</i> Emerging Investigator
2015	ACS COMP Division Outstanding Junior Faculty Award
2015	RSC Harrison-Meldola Memorial Medal
2015	<i>Thieme Chemistry Journal</i> Award
2014	Molecular Graphics and Modelling Society Silver Jubilee Award
2014	ACS Organic Division Young Academic Investigators Award

Selected Recent Publications (of 149 published articles; full list at patonlab.colostate.edu)

Phosphorus-mediated sp^2 – sp^3 couplings for C–H fluoroalkylation of azines, Zhang, X.; Nottingham, K. G.; Patel, C.; Alegre-Requena, J. V.; Levy, J. N.; Paton, R. S.; McNally, A. *Nature* **2021**, 594, 217–222.

Mechanistic Investigation of Rh (I)-Catalyzed Asymmetric Suzuki-Miyaura Coupling with Racemic Allyl Halides. van Dijk, L. et al. *Nature Catalysis* **2021**, 4, 284–292

Prediction of homolytic bond dissociation enthalpies for organic molecules at near chemical accuracy with sub-second computational cost. St John, P.; Guan, Y.; Kim, Y.; Kim, S.; Paton, R. S. *Nat. Commun.* **2020**, 11, 2328.

Cofactor-independent pinacolase directs non-Diels-Alderase biogenesis of the Brevianamides. Ye, Y. et al. *Nat. Catal.* **2020**, 3, 497–506.

Fungal Indole Alkaloid Biogenesis through Evolution of a Bifunctional Reductase/Diels-Alderase. Dan, Q. et al. *Nature Chemistry* **2019**, 11, 972–980.

Heterobiaryl synthesis by contractive C–C coupling via P(V) intermediates Hilton, M. C.; Zhang, X.; Boyle, B. T.; Alegre-Requena, J. V.; Paton, R. S.; McNally, A. *Science* **2018**, 62, 799–804.

Asymmetric nucleophilic fluorination under hydrogen bonding phase-transfer catalysis Pupo, G.; Ibba, F.; Ascough, D. M. H.; Vicini, A. C.; Ricci, P.; Christensen, K.; Morphy, J. R.; Brown, J. M.; Paton, R. S.; Gouverneur, V. *Science* **2018**, 360, 638–642.

Recent Invited Lectures (of 105 total)

Syngenta Catalysis Network Lecture 2022 · 23rd Tetrahedron Symposium, Gothenburg, Sweden Gordon Conference on Computational Chemistry · PKNU, Busan, South Korea · Stanford University · Molecule Maker Lab Institute (MMLI) · Colorado School of Mines · [15th Winter Conference on Medicinal & Bioorganic Chemistry](#), Steamboat Springs, CO · Montana State University · Gordon Conference on Stereochemistry · IUPAC World Chemistry Congress, Montreal · Gordon Conference on Physical Organic Chemistry · Genentech · GSK · 24th Annual ACS Green Chemistry & Engineering Conference · University of Missouri – St. Louis · University of Denver · Frontiers in Physical Organic Chemistry, Southwest & Rocky Mountain Regional ACS Meeting, El Paso · Princeton University · UCLA · Machine Learning and Informatics for Chemistry and Materials, Telluride · Mechanistic Homogeneous Catalysis – A Meeting between Theory and Experiment, Stockholm · ISTCP X, Tromsø, Norway · University of Vienna · UC Denver · Hanyang University · Pukyong University · 2nd International Symposium on Organic Reaction Mechanism, Shenzhen · Computational Catalysis for Sustainable Chemistry, Spain · 37th RMC, U. of British Columbia, Vancouver · *Predictive Catalysis* 2018, Girona, Spain · 11th EUCO-TCC, Barcelona, Spain · Complutense University of Madrid · Colorado School of Mines · *Challenges in Computational Homogeneous Catalysis*, Stockholm, Sweden · *V ENEQUI*, Coimbra, Portugal · University of Cologne

Research Activities

- 2022-2024: Co-chair - Gordon Conference on Computational Chemistry
- 2021 – present: Instructor – Colorado State Coding Camp for High Schoolers
- 2019: Co-founder of the NSF Center for Computer Assisted Synthesis
- 2019 – present: Co-chair: Telluride annual Workshop “Machine Learning and Informatics for Chemistry and Materials”
- *Ad Hoc* Review Panel Member for NSF, NIH, DFG
- Editorial Advisory Board Member, *Tetrahedron Chem*; *Trends in Chemistry*; *Journal of Molecular Graphics and Modelling*; *Heteroatom Chemistry*; *Chemistry – Methods*; *Magnetic Resonance in Chemistry*
- *Nature Journals* Outstanding Reviewer (2017) *Publons* top reviewers in Chemistry, 99th percentile 2017-2019.
- External PhD examiner at the Universities of Oxford, Cambridge, Helsinki and Heriot-Watt.

Current Research Support (Paton's allocation shown)

- 09/01/2022 – 08/31/2027 *CCI Phase II: NSF Center for Computer Assisted Synthesis* - \$1,150,000
- 09/01/2022 – 08/31/2023 *Collaboration Agreement* (NREL) - \$55,000
- 04/01/2022 – 03/31/2025 *Collaborative Research: Electrochemical Ni-Catalyzed Reductive Biaryl Coupling: Mechanistic Studies to Enable Chemical Synthesis* (NSF CAT) - \$180,000
- 03/01/2022 – 02/28/2023 *Collaboration Agreement* (GlaxoSmithKline) - \$100,000
- 09/01/2020 – 08/31/2023 *Mechanism, Selectivity and Reaction Dynamics in Hydrogen Atom Transfer* (ACS-PRF New Directions Grant) - \$110,000
- 06/01/2020 – 05/31/2023 *Discovering Modular Catalysts for Asymmetric Synthesis with Computation* (NSF CAT) - \$420,786,000
- 05/01/2020 – 09/30/2022 *End-To-End Optimization for Battery Materials and Molecules By Combining Graph Neural Networks And Reinforcement Learning* (ARPA-E) - \$270,000