

Andrew Pitts' Pittsposium

Andrew M. Pitts matriculated in 1974 at Trinity College Cambridge, to read Mathematics. After completing the University of Cambridge MMath (or Part III of the Mathematics Tripos as it was then known) with Distinction in 1978, he was supervised for a PhD by Peter Johnstone and worked closely with Martin Hyland. The three of them created Tripos Theory, which has no connection with the examination of the same name. His thesis on The Theory of Triposes was submitted towards the end of 1980 and was examined by Gavin Wraith (Sussex) and Peter Aczel (Manchester). Andrew was elected to a Research Fellowship at St John's College Cambridge in 1981. He spent the last year of the Fellowship as a Research Visitor at the Centre en Etudes Catégoriques in the Department of Mathematics at McGill University, Montréal. He collaborated with, among others, Michael Makkai, and a joint paper had the side-effect of giving Andrew an Erdos number of 2. The following year was spent as a Visiting Lecturer with Bill Lawvere at SUNY Buffalo. Moving to Sussex in 1985, he was a Royal Society University Research Fellow in Mathematics, before taking up a lectureship in Computer Science at Cambridge in 1989. He has been Professor of Theoretical Computer Science at the University of Cambridge since October 2001 and is also a Darwin College fellow.

Andrew's first decade of research was within pure mathematics and concerned the applications of category theory in logic and foundations. In the late eighties he contributed to the flowering of applications of categorical logic in computer science and moved from being surrounded by mathematicians to being surrounded by computer scientists when the Head of the Computer Laboratory in Cambridge, Roger Needham, took the bold step of appointing him to a Lectureship. He has since focused on all aspects of the mathematical foundations of programming languages and their semantics, with work ranging over category theory, constructive logic, type theory, and the design and implementation of metaprogramming languages.

At the turn of the millennium, Andrew together with his PhD student Jamie Gabbay developed a new approach to modelling abstract sets whose elements have occurrences of names in them, formalizing new ways to represent, compute and reason about syntactical structures modulo renaming of bound names. Over a decade of work applying these ideas to semantics culminated in an ACM Fellowship in 2012 and *Nominal Sets* published by CUP in 2013. Along with Jamie Gabbay, he was given the 2019 Alonzo Church Award by ACM SIGLOG, EATCS, EACSL and KGS, and won (also with Gabbay) a 2019 Test-of-Time Award from the ACM/IEEE Symposium on Logic in Computer Science. Andrew's recent research has applied one of his abiding interests, topos theory, to dependent types including Homotopy Type Theory. He uses the Agda theorem prover both to develop mathematical concepts and to check the correctness of proofs.