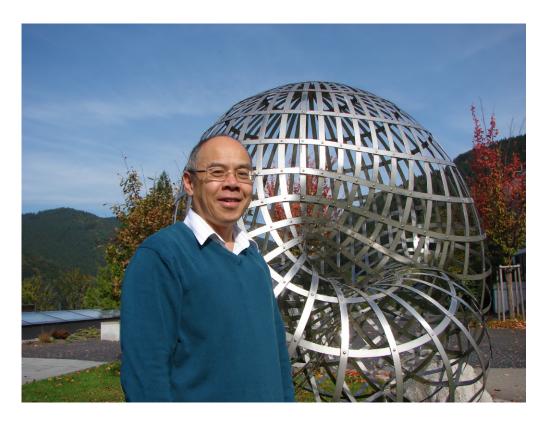# PROFILE

Stephen Joe

Associate Professor Stephen Joe has been at the University of Waikato since taking up a lectureship in 1992 in the then Department of Mathematics and Statistics. He will be retiring at the end of January, 2024.

Stephen was born in Palmerston North and completed a first class Honours degree in statistics at Massey University in 1980. He then did part-time study towards a Master of Science at Massey University which he completed in the middle of 1982. Originally the master's degree was meant to be in Statistics, but it ended up being one in Mathematics. The dissertation topic was on the numerical solution of systems of nonlinear equations and supervised by Adrian Swift.

This interest in numerical methods and numerical analysis carried on to PhD study. He was awarded a Commonwealth Scholarship to study in Australia and chose to go to the University of New South Wales. He completed a PhD titled 'The numerical solution of second kind Fredholm integral equations' in 1985 under the supervision of Ian Sloan.

After completion, he worked as a fixed-term lecturer at the University of New South Wales for two years before returning to New Zealand in 1987. After a period of time working in the family business, he returned back to the University of South Wales at the start of 1989 as a post-doctoral fellow. Again he worked with Ian Sloan and this time the research was concerned with the numerical approximation of multiple integrals by using lattice methods.During this time, he and Ian started work on a book together titled 'Lattice Methods for Multiple Integration'.

The book was finally published by Oxford University Press in 1994 after Stephen had joined the University of Waikato. Fortunately, the advent of email made it easier to collaborate together and communicate with the publisher even though the authors and publisher were all in different countries.

Stephen's book with Ian Sloan is his best known publication. However, his work on Sobol' points (another approach to numerical multiple integration) appears in the NAG Library and Matlab as well as packages like QuantLib. This work was in collaboration with Frances Kuo. The first paper on Sobol' points was produced when she was Stephen's PhD student and the second paper produced after she had joined the University of South Wales to work with Ian. In terms of the Mathematics Genealogy Project, Frances is a 'granddaughter' of Ian. Stephen's main research collaborators have been Ian and Frances. However, he has also published a number of papers with James Lyness who was at Argonne National Laboratory when they worked together.

Besides his book with Ian, Stephen helped write the second edition of the textbook 'First Steps in Numerical Analysis' which was published in 1996. This second edition was written in collaboration with the authors of the 1978 first edition, namely Roger Hosking, Donald Joyce, and John Turner. These names are familiar to a number of older members of the NZMS. Both Roger and John were at the University of Waikato when the first edition was written while Donald taught numerical analysis to Stephen at Massey University. Sadly, Roger and John passed away last year.

Stephen has made a number of contributions to the mathematics community. Of course, he has produced research articles and refereed papers for journals and conference proceedings. He has been Convenor and Secretary for two Mathematics Colloquia and been Secretary for another Colloquium as well as ANZIAM 2005. He served two consecutive terms on the NZMS Council from 1995 onwards which included being Secretary for four years. He is back on the NZMS Council and is the current Treasurer. He was the University of Waikato local correspondent for the NZMS Newsletter for 20 years. He has been the NZMS Webmaster in the past with the records in the NZMS Newsletter suggesting he had this role between about 1997 and 2010. He felt very honoured to have been made a Fellow of the NZMS in 2019.

During his time at the University of Waikato, it's fair to say that Stephen is more known around the university for his administration than teaching and research. Besides serving on a number of university committees, he served a three-year term as Chairperson of Department. He had two short stints of being Acting Dean/Head of the School of Computing and Mathematical Sciences (which includes Mathematics, Statistics, Computer Science and Design). Between these two stints, he was Deputy Dean of the School for over ten years. Academics win awards for research and/or teaching. Stephen hasn't won such awards, but he did win a university staff award for administrative excellence in 2011. From the dozen or so staff who won staff awards that year, he was chosen for the Vice-Chancellor's Medal for Staff Excellence.

He has no immediate plans post-retirement except to see their only grandchild more frequently and to do up the house.

Kevin Broughan