

PROFILE

Professor James Sneyd, FRSNZ



Dunedinite, musician, icon and pillar of the scientific establishment, it is well and truly time for Professor James Sneyd to grace the profile pages of our newsletter. James was born into a medical family in Dunedin and, except for a brief stint in Tennessee with his parents, spent his childhood and teenage years in our southernmost university city. With parents who were doctors, parents' friends who were doctors, parents' friends' children who went to medical school, he enrolled at the University of Otago. Thanks to numerous engaging conversations with his uncle Alfred (profile in NZMS Newsletter 105), James was curious about mathematics, and included a math course in his medical programme. When I asked about the switch to mathematics, the answer was clear and unambiguous: really enjoyable lectures from Dennis McCaughan, followed up by another insightful conversation with Alfred. Upon realising that you could use math to work stuff out, and actually understand it, James changed his major to include mathematics.

Studying mathematics and being a mathematician are two different things – the only disagreeable part of my conversation with James was my attempt at a standard question: “when did you decide to be a mathematician?” James said that he wasn't a real mathematician, so the question didn't make sense. After a bit of back and forth, we settled on talking about his becoming “a not real mathematician”. Another clear and unambiguous answer: browsing the mathematics shelves in the library, James came across Jim Murray's “Lectures on Nonlinear Differential Equations in Biology” (now out of print). He read it from cover to cover, several times, and decided that this was what he wanted to do. With Jim Murray. In Oxford. The first strategy didn't work out: get a Rhodes Scholarship [fellow Otago Alumnus and All Black David Kirk got it instead]. The second try didn't work out either: writing to Jim Murray, asking for funding and a PhD place [knowledgeable authorities suggest that the letter was received, read (due to the unusual surname), then thrown away with all the other such letters]. Instead, James applied for the top five US graduate schools for mathematical biology (chosen via “Top-ranked US graduate schools”, again courtesy of the UoO library). After being offered places at all of them, it was the personal follow-up from Professor Charles Peskin that made James choose NYU (many readers will remember that receiving an

international phone call was a VERY BIG DEAL in 1980s New Zealand!). After numerous interesting graduate courses, James completed his thesis with Dan Tranchina and Charlie Peskin and was immediately offered a tenure-track position at UCLA. He was able to negotiate a delayed start, and finally went to Oxford to spend a year with Jim Murray.

Once at UCLA, James went to every physiology seminar that he could, and began his productive and renowned modelling and analysis of intracellular and intercellular calcium dynamics. Over 25 years, with coauthors and students, he has written approximately 100 papers on various aspects of calcium dynamics. His impressive body of work is guided by a very clear philosophy: “I’ve never proved a theorem, and I’m not going to start now. Don’t waste time, solve the problem and get on with the Science.” One of the foundations of his research success is to work closely with experimentalists, investigating problems that physiologists actually want to solve.

James returned to New Zealand in 1994, taking up a lectureship at the University of Canterbury. To hedge against the possible difficulties of maintaining long-distance collaborations with experimentalists, he decided to keep busy and put his enjoyment of writing to good use, by working on a book. Together with Jim Keener, James produced the first edition of *Mathematical Physiology*, recording in one place many of the exciting modelling successes of mathematical physiology from the twentieth century. The project took five years, and won the American Association of Publishers prize for best mathematics book of 1998. The “Twin Jim Physiology Wunderbook” [as it is known to the leading authorities] is used widely as a goto text, is a prized occupant of the bookshelves of many mathematicians (even real ones), and has been very influential. Indeed, following its publication, the book generated so much attention that Keener and Sneyd spent another five years revising, correcting, expanding and updating for the second edition.

In 1998 James received an offer from the University of Michigan that was too good to turn down, and relocated with his young family to the US. However, almost immediately they realised that they really did prefer life in New Zealand. This time, James returned to Massey Albany, and then in 2002 succeeded John Butcher as Professor of Applied Mathematics at the University of Auckland. As well as prolific research output and supervising dozens of graduate students, James has served approximately four years as Head of Department at UoA. He is particularly proud of the appointments that occurred through that period, increasing the number of applied mathematics Professors from one to four, and recruiting a number of outstanding young academics.

James is a masterful academic, and in light of his enviable research profile and strong academic leadership contributions, I asked him for some advice for readers looking toward graduate school, for a first academic position, or wondering how to thrive once securing a permanent job. He said that the two most important attributes are to write well, and to speak well. For those who become captivated by mathematical biology, his words were even more specific: “Never, ever prove a theorem. Ever. Just not relevant. Always look at the data.”

Personally, I enjoy talking to James. He is fun to listen to, and fun to work with. He is unflappable, patient, direct and incredibly sharp. He takes mathematics and science very seriously, but does not take himself too seriously. However, as many readers know, his own experimental endeavours with hair colour have not always been brilliant. I finished our conversation by asking about his favourites: blue (inculcates a sense of pride, because it is hard to do); green (easy to do); purple (fades fast); pink (lasts longer at important formal events).

Rua Murray