Report on ANZIAM 2019

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The Australia and New Zealand Industrial and Applied Mathematics (ANZIAM) annual conference is one of the main opportunities for mathematical biologists to meet up in the local region to share their research and exchange novel ideas. This year's ANZIAM meeting (3-7 February 2019) was held in Nelson, a beautiful town on the South Island of New Zealand. Despite some local wildfires what caused some concern for conference delegates, I have no doubt that we were all impressed by the conference talks covering a broad range of topics in applied mathematical, and in particular, mathematical biology.

The talks related to mathematical biology were heavily distributed in three areas: cell biology (~40 talks), infectious diseases (~20 talks) and ecology (~12 talks). I mainly attended infectious diseases talks and learnt a lot about the advanced models and approaches to studying different problems at within-host level, population level and evolutionary level. With increasing knowledge at each scale, more in-depth studies on cross-scale effects are around the corner, and I believe we will see them at the next ANZIAM meeting. For cell biology and ecology, I would like to highlight the plenary talks given by Claire Postlethwaite (University of Auckland), Ruth Baker (University of Oxford) and Martin Wechselberger (University of Sydney). They all showed excellent exemplars of how mathematics can advance our understanding of biological problems.

The main conference was followed by a one-day meeting of the Mathematical Biology Special Interest Group (MBSIG), which was founded seven years ago. The day started with a talk on cardiac muscle cells in diabetic heart by Vijay Rajagopal (University of Melbourne) followed by modelling of Auckland's mumps epidemic by Vinod Suresh (University of Auckland), temperature-dependent fitness curve skewness by Amy Hurford (Memorial University of Newfoundland), genetic topology in microbial systems by Jody Fisher (Flinders University), spatial modelling of collective cell behaviour by Rachelle Binny (Manaaki Whenua-Landcare Research) and the Best Paper Prize* talk on "Inferring parameters for a lattice-free model of cell migration and proliferation using experimental data" given by Alexander Browning (Queensland University of Technology). It was unfortunate that John Gamlen (University of Alberta) and Graeme Wake (Massey University) could not give their presentations due to the wildfire evacuation but we expect to hear their talks next year.

Finally, I would like to thank the organising committees of both ANZIAM and MBSIG, without whom we would not have had the chance to enjoy the magic of mathematics in such a beautiful town. I am looking forward to the next ANZIAM and MBSIG meetings in the Hunter Valley in New South Wales.

*Browning, Alexander P and McCue, Scott W and Binny, Rachelle N and Plank, Michael J and Shah, Esha T and Simpson, Matthew J "Inferring parameters for a lattice-free model of cell migration and proliferation using experimental data" Journal of Theoretical Biology, 437, 251-260, 2018