



Fellowships

Alf van der Poorten Travelling Fellowship

Congratulations to Dr Joshua Howie, winner of the 2017 Alf van der Poorten Travelling Fellowship.

The Alf van der Poorten Travelling Fellowships aim to assist young pure mathematicians in travelling in Australia and overseas so that they can enrich their mathematical research through contact with other mathematicians. The Fellowships are awarded on the basis of academic merit, although need may be taken into account. The Fellowship is funded by the family of the late Professor Alf van der Poorten.

Alf van der Poorten was a professor of pure mathematics at Macquarie University. He published 180 papers, mostly in number theory and related fields. He was President of the Australian Mathematical Society 1996–1998 and he was awarded **The George Szekeres Medal** in 2002 in recognition of his career research achievements and his contributions to the mathematical sciences. Alf van der Poorten was appointed a Member in the Order of Australia, AM, in the Australia Day Honours List 2004, for service to ‘mathematical research and education, particularly in the field of number theory’.

The Alf van der Poorten Travelling Fellowship is offered in odd-numbered years to researchers who have obtained their PhD in pure mathematics from an Australian university.

Dr Howie obtained his PhD in 2014 at the University of Melbourne under the supervision of Professor J. Hyam Rubinstein, on the topic ‘Surface-alternating knots and links’. He is currently a postdoctoral fellow at Monash University. In 2014 he won the B.H. Neumann prize at the AustMS meeting and the Gordon Preston Prize. As an undergraduate at the University of Otago, he won the D.B. Sawyer Prize in Mathematics (3rd year), University of Otago, the Richardson Prestige Scholarship in Arts, and the R.J.T. Bell Prize in Mathematics. In 2016 he won an AustMS Lift-Off Fellowship.

Recently he proved a topological characterisation of alternating knot complements, using properly embedded spanning surfaces, which answered an open question of Ralph Fox from the early 60s. He would like to extend this characterisation to an algebraic one. He will try to find a characterisation of the knot groups associated to alternating knots. He proposes to collaborate with Genevieve Walsh, who is an associate professor at Tufts University, and an expert on the interaction of group theory with low-dimensional topology. He plans to spend three weeks at the thematic month on low-dimensional topology, whose topics include knotted embeddings in dimension 3 and 4, and 3-manifold groups, at the Centre International

de Rencontres Mathematiques in Marseille, France. He also proposes to work with Anastasiia Tsvietkova, an expert on alternating links and hyperbolic geometry, who is based at Okinawa Institute of Science and Technology in Japan. She has recently developed new techniques for studying both closed and spanning surfaces in alternating knot complements. He also plans to attend a conference in Okinawa on the geometry and topology of 3-manifolds

Professor Sidney A. Morris, Chair,
Alf van der Poorten Travelling Fellowships Committee