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## Editorial

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**Biographical notes:** Cather Simpson joined University of Auckland in 2007, with a joint appointment in Physics and Chemical Sciences. She received her PhD in the USA in Medical Sciences with a focus on the ultrafast vibrational dynamics of heme proteins. After a Department of Energy Distinguished Postdoctoral Fellowship, she joined the Chemistry Department at Case Western Reserve University to pursue research in ultrafast energy conversion in molecules. After earning tenure and promotion at CWRU, she moved to the University of Auckland, where her research focuses upon how molecules and materials ‘decide’ what to do with the energy they absorb as light as they convert it into more useful forms of energy. This leads her to the study of a wide range of phenomena, from the fading of art pigments on the 100-year timescale to laser micromachining and microfabrication to the sorting of sperm by sex through the interaction of laser light and cells. This research is performed in the Photon Factory, the high-tech laser lab she founded and directs. She is a PI in the MacDiarmid Institute and the Dodd-Walls Centre, where she sits on the Executive. Recent accolades include a NZ Teaching Excellence award and the 2016 Silicon Valley Forum 1st-place AgTech medal. She was named Baldwins Researcher Entrepreneur and BNZ Supreme winner at the 2016 KiwiNet awards, and is a NZ Primary Industries Champion and a Fellow of the New Zealand Institute of Chemistry. She is the founding chief science officer of Engender Technologies, and co-founding CSO of Orbis Diagnostics, both international award-winning spin-offs from the Photon Factory.

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The *8th International Conference on Advanced Materials and Nanotechnology (AMN-8)*, was held in beautiful Queenstown, New Zealand in 2017. The conference was the eighth in the biennial series of meetings sponsored by the MacDiarmid Institute for Advanced Materials and Nanotechnologies. The exceptional scientific programme, with luminary international and local speakers, highlights the continued strength of advanced materials and nanotechnology research. Exciting recent advances in making tiny machines, two-dimensional materials, and in designing new nanoscale materials that have tailored functions – from protein nanotech to quantum computing – were the focus of the plenary sessions. The invited and contributed talks and the poster presentations complemented and built upon these and other relevant areas. The edited volume presented here illustrates the depth and breadth of the research presented at the conference. Professor Paul Kruger, from the School of Chemical and Physical Sciences at the University of Canterbury, led the AMN8 organising committee – together they put

together an exciting, thought-provoking programme of scientific and social networking events. The contributions presented here have been peer-reviewed in a selective process. We trust that you will find this edited volume a stimulating reflection on the conference, and that you will plan to join us at the next conference, AMN-9, in New Zealand.