The Endless Σummer

by Martijn de Sterke, Boris Kuhlmey and Chris Poulton

Friday 21 February was the day of the Endless Σummer, the occasion to mark the retirements of two pillars of Australian optical science, Ross McPhedran (AOS' foundation secretary and later Editor of AOS News) from the School of Physics at the University of Sydney, and Lindsay Botten from the School of Mathematical Sciences at UTS.

Ross and Lindsay have maintained a close and highly productive collaboration ever since their PhD studies at the University of Tasmania in the 1970s. Over their careers Ross and Lindsay contributed greatly to optics and electromagnetism, in areas as diverse as diffraction gratings, photonic crystals and photonic crystal fibres, and wave propagation in random media. The name "Endless Σummer" refers to Lattice Sums, conditionally convergent series over a periodic lattice of points that are important in the solution to a number of problems in theoretical electromagnetics. Approximately 60 people attended the day, including present and former students, as well as colleagues, some of whom had come from interstate and even from overseas.

The programme was diverse with speakers presenting on the many aspects of Ross and Lindsay's research careers, their contributions to the two Universities, to Australian Research infrastructure, and to the research community as a whole.

Figure 1. End of the morning session

The day started at the University of Sydney with presentations by Tim Bedding (Head of the School of Physics), Don Melrose (U Sydney), Natasha Movchan (U Liverpool, UK), Graeme Milton (U Utah), David McKenzie (U Sydney), Maryanne Large (U Sydney), Yuri Kivshar (ANU), AOS President Ann Roberts, a former student of Ross' (U Melbourne), David Mills (formerly at U Sydney), Peter Robinson (U Sydney), and Pavel Belov (St Petersburg). After lunch the afternoon session at UTS started with an interview conducted by former AOS President Chris Walsh, who quizzed Ross and Lindsay about their Tasmanian days, and how they both ended up in Sydney. The interview offered some insights on the evolution of academia over the last few decades, and some more philosophical reflections on its future. Afternoon speakers were Tim Langtry (UTS), Gordon McLelland (formerly UTS), Mark Wainwright (ANU), Ben Eggleton (U Sydney), Stefan Enoch (Institut Fresnel, Marseille), and Tom White (ANU). Boris Kuhlmey presented on behalf of Daniel Maystre, Ross' long-term French collaborator from Marseille. The day finished with a dinner with more speeches and an opportunity for Ross and Lindsay to reply.

Among the highlights of the day was "Abramowitz, Prince of Denmark," Peter Robinson's variation on Hamlet's famous soliloquy, the first four lines of which read (with apologies to William Shakespeare):

Figure 2. Ross McPhedran

"To sum, or not to sum - that is the question;
Whether 'tis nobler in the mind to suffer
The recursive nature of divergent functions,
Or to use identities against a sea of terms,
..."

Graeme Milton, Ross's former student talked about his early research work with Ross, and how Ross and Lindsay's work on the electromagnetic theory of gratings had influenced his own seminal work in the field of composite materials. Natasha Movchan spoke about her long-standing collaboration with Ross and about her work on elastic waves, research that had its origins in the grating theory developed by Ross and Lindsay.

Maryanne Large's presentation, "When Ross met Aphrodite" referred to Ross and Lindsay's work on the "Sea Mouse," Aphrodite Aculeate, a 10 cm long sea creature with iridescent hairs which have a photonic crystals-type structure inside them. For years Ross travelled internationally with a sample of a sea

Figure 3. Lindsay Botten

mouse and pulled it out as the occasion demanded. Both Yuri Kivshar and Pavel Belov presented Ross with cartoons - Pavel's can be seen in the background of Fig 1.

Ross remains research active and he remains a Chief Investigator in CUDOS, the ARC Centre for Ultrahigh-Bandwidth Devices for Optical Systems. Lindsay retired from UTS and is no longer a CUDOS Chief Investigator, but is now the Director of NCI (National Computational Infrastructure), the National Supercomputer Facility in Canberra. The Endless Σummer was organised by Martijn de Sterke, Boris Kuhlmey, and Chris Poulton and was generously sponsored by the University of Sydney, UTS and by CUDOS.

Figure 4. Ross and Lindsay being interviewed by Chris Walsh

Figure 5. From left to right: Natasha Movchan, James Yardley, Chris Poulton, Ross, Pavel Belov.

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Figure 6. From Left to right: Geoff Smith, Gordon McLelland, Lindsay, Graeme Cohen, Tim Langtry.

Figure 7. Snjezana Tomljenovic-Hanic and Yuri Kivshar.

Figure 8. AOS President Ann Roberts (left) and AOS past-president Judith Dawes (right).