

IEEE SOUTH AUSTRALIA SECTION

2016 ANNUAL REPORT

SUBMITTED TO REGION 10

IEEE-SA SECTION 2016 CHAIR'S REPORT

Part A Section Summary

A.1 Executive Summary

In my second annual report as Chair of IEEE South Australia Section, I would like to express my thanks to all the Excom committee members that made possible the smooth functioning of the Committee during this year. These include: Vice Chair - Pina Dall'Armi-Stoks, Treasurer - Sherry Randhawa, and Secretary – Luke Balzan.

I also would like to express my gratitude to all the Technical Chapter and Affinity Group Chairs and the members of the respective committees, as well as the leadership teams of our Student Branches.

SECTION EXECUTIVE COMMITTEE MEMBER LIST

South Australia Section	Chair	Karl Sammut
	Vice-Chair	Pina Dall'Armi-Stoks
	Treasurer	Sherry Randhawa
	Secretary	Luke Balzan
WIE Affinity Group	Chair	Sherry Randhawa
	Vice-Chair	Pina Dall'Armi-Stoks
	Treasurer	Michele Knight
	Secretary	Gretel Png
Computer Society	Chair	Andrew McDonnell
	Vice-Chair	
	Treasurer	Ross Smith
	Secretary	Victor Stamatescu
CAES	Chair	Cheng-Chew Lim
	Vice-Chair	Fangpo He
	Treasurer	Michael Evans
	Secretary	
C&SP	Chair	Luke Balzan
	Treasurer	Brian Ng
AP/MTT	Chair	Christophe Fumeaux
	Vice-Chair	Bevan Bates
	Treasurer	Bobby Yau
	Secretary	Shengjian Jammy Chen
Young Professionals	Chair	Marek Dziadosz-Findlay
	Vice-Chair	
	Treasurer	Anthony Milton
	Secretary	Scott Sleep

IET Retired Engineers Group	Chair	Harry Green
	Vice-Chair	CJ Keith Kikkert
Ocean Engineering-Australia Council Joint Chapter	Vice-Chair	Karl Sammut
Power & Energy Society	Chair	Wai-Kin Wong
	Vice-Chair	Mohammed Haque
	Treasurer	Athmi Jayawardena
	Secretary	Christian Nolden
Conference support coordinator		Leigh Powis
Web master		Bobby Yau
Retired Engineers Liaison/Section History		Michael Evans
Student Activity coordinator		Christophe Fumeaux
University of Adelaide Student branch		Vaishali Ghosh
University of South Australia Student Branch		Nayeema Sadeque
Flinders University Student Branch		Shela Cook

Our Section had a year full of high quality technical activities.

In support our members and the local community IEEE SA Section and chapters had 54 technical and professional activities during 2016 and held 5 Section meetings.

AP/MTT	PES	CAES	Computer	C&SP	YP	WIE	LMAG	Section JTP
9	3	5	5	3	2	3	7	9

The IEEE SA Section Committee met five times in 2016 (March, May, November, December, December). In addition to the full committee meetings, the Section Officers held additional meetings as required to discuss matters arising between the scheduled dates of the full Committee meetings. The Section Committee members also maintained ongoing contact by email to deal with issues that could be handled by electronic means.

As part of the IEEE SA Section participation in the Joint Technical Program (JTP) Electrical, the IEEE SA Section hosted 2 of the 10 JTP technical meetings.

The SA Section Chair, Karl Sammut, attended the regular meetings of the IEEE Australia Council meetings in 2016, chaired by Tapan Saha, in order to coordinate with other Australian Sections.

The SA Section Vice-Chair, Pina Dall'Armi Stoks, attended the Region 10 Section Chairs meeting in Bangkok in March 2016 to meet the Region 10 leadership team, the IEEE Australia Council team, and IEEE Headquarters office bearers.

A.2 Financial Report

Our Financial Summary has been submitted via L50.
The full Financial Report was submitted via Netsuite

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

Our Membership statistics for 2016 are shown in the table below.

Section Name	Sub Section Name	IEEE Current Grade Description	Count of Members*
South Australia Section		Associate Member	3
		Fellow	4
		Graduate Student Member	41
		Life Fellow	2
		Life Member	10
		Life Senior	5
		Member	386
		Senior Member	58
		Student Member	18
		527	
South Australia Section Total			527

The Section has declined in size by 42 members from the previous year. The decline is mostly in the number of graduate members rather than in the number of members.

B.2 Chapter Activities

IEEE South Australia section has six active chapters: Computer, Communication/Signal Processing, Antenna Propagation/Microwave Theory & Technique, Control/Aerospace and Electronic Systems, Information Theory (SA/ACT/VIC) and Power Engineering Chapter. In addition the Australia Council has Australia wide Instrumentation & Measurements Society (IMS) chapter and the Ocean Engineering Chapter. A new Chapter proposal in Biomedical Engineering is being developed for submission in 2017.

The technical activities for each of the current chapters are shown in their respective AGM reports.

B.3 Students Activities

IEEE South Australia has three student branches at Adelaide University, Flinders University, and the University of South Australia. In order to encourage more student members, the

Section has voted to introduce a Student Paper Competition for students from the three universities in South Australia. The winners of the competition will be awarded a monetary prize.

The Student Subject prize-winners for the IEEE South Australia Section 2015 Student Award for Excellence in Engineering with an electrical and/or electronics emphasis were presented to

Barbara-Anne Kerslake– (2015) Flinders University
Ryan Rowston - (2016) Flinders University.
Robert McAuley - (2016) The University of Adelaide

These awards were presented at the 2015 Section's DLD.

The Student Branches at The University of Adelaide, the Flinders University and the University of South Australia continued their high levels of activity. Christophe Fumeaux continued as the Student Activities Coordinator of the SA Section in 2016.

B.4 Affinity Group Activities

South Australia Section has three Affinity Groups: Young Professionals (YP), Women In Engineering (WIE) and Life Members Affinity Group (LMAG). The reports for these Affinity Groups are included in their respective AGM reports.

B.5 Awards & Recognition Activities

Cornelis Jan (Keith) Kikkert (South Australia Section) was a recipient of the **2015 IEEE R10 Outstanding Volunteer Awards**. The R10 Outstanding Volunteer Award aims to recognize those volunteers who have made outstanding contributions to a particular Region 10 Section. A total of nine awards were made in 2015, with three awards made to members in Australian Sections.

B.6 Other Organizational Activities

The Section Committee supported Pina Dall'Armi Stoks to attend the 2016 IEEE R10 meeting in Bangkok. The trip was subsidised by Region 10 and Australia Council.

Part C

C.1 Relationship with National Societies

The IEEE-SA Section has also a very strong collaboration with our professional colleagues in Engineers Australia, the Institution of Engineering and Technology (IET), and the Telecommunication Society of Australia (TSA) through the Joint Technical Program (JTP) and IET Retired Engineers Group. As part of the IEEE SA Section participation in the Joint Technical Program (JTP) Electrical, the IEEE SA Section hosted two of the 10 JTP technical meetings and presentations held in 2016.

28th June

To the Dark Continent and beyond -

A story of redundancy, rebirth, and redirection for an ex-telecom engineer

Prof John Arkwright, By Prof John Arkwright South Australian Premier's Professorial Research Fellow in Biomedical Engineering, School of Computer Science, Engineering, and Mathematics, Flinders University at Tonsley
In 2003 the telecommunications industry went into a tail-spin and I needed a new job. With the arrogance of ignorance I decided that it would be pretty easy to apply my hard-won expertise in optical fibre technology to in-vivo measurement and diagnostics.

In this talk I will describe the rather strange journey that took me from working on submarine cables to the complex and convoluted environment of the gastrointestinal tract below the stomach; the 'Dark Continent' of the human body.

15th Nov 16

Site Visit -Tour of University of Adelaide Luminescence Laboratory

Adjunct Professor Nigel A. Spooner. Nigel holds an MSc (Physics) degree from the University of Adelaide and a DPhil. (Physics) from the University of Oxford. In 1993 he was recruited by the Australian National University to establish and head their new Luminescence Laboratory. He joined DST Group in 2002, and has established and leads the joint DST Group-University of Adelaide Luminescence Centre of Expertise, within the Institute for Photonics and Advanced Sensing.

Visit to the University of Adelaide, John R. Prescott Environmental Luminescence Laboratory (PELL) in "The Braggs" building. Luminescence induced by ionising radiation can be used for the quantification of both ambient radiation and total absorbed radiation dose. Such "environmental dosimetry" has unique applications to Defence, National Security and Public Health. These include the forensic detection of prior exposure to radiation and the measurement of radiation dose following radiological events such as the Fukushima incident. Luminescence dosimetry is also widely applied for dating in archaeology, palaeontology and earth sciences. PELL programs also include radiation-sensitive optical fibre development for real-time radiation monitoring, novel laser-induced mineral fluorescence, and radionuclide measurement

C.2 Special Events

2016 IEEE SA Section Distinguished Lecturer



The Future of Computing

Professor Michelle Simmons

ARC Laureate Fellow and

Director of the Centre of Excellence for Quantum

Computation and Communication Technology

Down-scaling has been the leading paradigm of the semiconductor industry since the invention of the first transistor in 1947. However miniaturization will soon reach the ultimate limit, set by the discreteness of matter, leading to intensified research in alternative approaches for creating logic devices. This talk will discuss the development of a radical new technology for creating atomic-scale devices which is opening a new frontier of research in electronics globally. We will introduce single atom transistors where we can measure both the charge and spin of individual dopants with unique capabilities in controlling the quantum world. To this end, we will discuss how we are now demonstrating atom by atom the best way to build a quantum computer – a new type of computer that exploits the laws of physics at very small dimensions in order to provide an exponential speed up in computational processing power.

Biography: Professor Simmons is an Australian Research Council Laureate Fellow & Director of the Centre of Excellence for Quantum Computation and Communication Technology. She has pioneered unique technologies internationally to build electronic devices in silicon at the atomic scale, including the world's smallest transistor, the narrowest conducting wires and the first transistor where a single atom controls its operation. This work opens up the prospect of developing a silicon-based quantum computer: a powerful new form of computing with the potential to transform information processing. Professor Simmons is one of a handful of researchers in Australia to have twice received a Federation Fellowship and now a Laureate Fellowship, the Australian Research Council's most prestigious award of this kind. She has won both the Pawsey Medal (2006) and Lyle Medal (2015) from the Australian Academy of Science for outstanding research in physics and was, upon her appointment, one of the youngest fellows of this Academy. She was named Scientist of the Year by the New South Wales Government in 2012 and in 2014 became one of only a few Australians inducted into the American Academy of Arts and Sciences. As a recent Fellow of ATSE, she was awarded the 2015 CSIRO Eureka Prize for Leadership in Science and in 2016 was awarded the Foresight Institute Feynman Prize in Nanotechnology for her work in 'the new field of atomic-electronics, which she created'. She is Editor-in-Chief of Nature Quantum Information.

The DLD Committee, comprising Pina dall'Armi-Stoks, Leigh Powis, Mark Pszczel, Sherry Randhawa, Vaishali Ghosh, and Michael Sadler, accomplished an outstanding job in

organising a very successful event and arranging the menu and schedule for the evening. They deserve our thanks for having achieved an excellent outcome, especially given the constraints on the DLD budget.



Prof. Michelle Simmons with members of the IEEE SA WIE Chapter and other DLD attendees.

C.3 Collaboration with other IEEE Sections

Collaboration with other neighbouring IEEE Sections has been handled through IEEE Australia Council. In addition we have collaborated on preparations for a joint Conference for IEEE RADAR 2018 (Brisbane 2018).

C.4 Problems ongoing/anticipated

The Section anticipates that finding young people to be active IEEE members and volunteers is one of the biggest challenges that our section is facing in the future. This problem is also faced by many other sections around the world. Young members are under increasing time pressure from their employers and finding time for IEEE volunteering is a challenge. Another major concern is that we need to develop new Chapters that are in-tune with new directions in the industry. Two new interest groups, Robotics, and Biomedical Engineering have been proposed, to address these emerging areas and it will be the Chair's priority to seek the development of these groups in 2016.

C.5 Best Practices of your section

It would be an understatement to say that South Australia Section Distinguished Lecturer series is an important part of South Australia IEEE Section calendar providing not only opportunity for social interactions between members but also expanding their horizon beyond electrical and electronic engineering. The event is also a way of collaborating with our colleagues from the other engineering professional societies, namely IET, and Engineers Australia, many of whom attend the IEEE-SA DLD.

Part D - GOALS AND PLANS

D.1 Continuation of Project/Activity in Progress and Their Implementation Plans

In 2017, we plan to continue the development of new Joint Chapters in Robotics and Biomedical Engineering that can attract more younger members to IEEE-SA. .

Associate Professor Karl Sammut,
Chair IEEE SA Section
20 December 2016
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