

# WHAT'S HAPPENING IN THE IEEE



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## Chairman's Column

### From the Region 10 Meeting 5-6 April 02, Bangkok

IEEE now has in excess of 375,000 members worldwide in more than 175 countries. The total non-US membership stands at slightly more than 36% of the total and is growing strongly. At current rates of growth it is expected that non-US membership will exceed US membership by 2010. Region 10 membership (second highest membership) is expected to be the largest within 5 years but will in turn be overtaken by Region 8 (Europe including Russia, the Middle East, Africa) by 2010. Approximately 33% of Region 10 members are GOLD (within 10 years of graduation), and Region 10 student membership has doubled since 1998. The combined membership of Regions 8, 10 is close to 30% of the total IEEE membership!

IEEE's technical activity is managed by 37 Societies and 4 Councils with world coverage. The Neural Network Council transitioned to a Society in February 2002 and a new Council in Nanotechnology was formed. Geographically IEEE is divided into 10 regions. Region 10, was the last region formed. IEEE has an interesting example of the Y2K phenomenon. Only one digit has been set aside for the Region number in the IEEE membership database and hence Region 10 is actually Region 0. There has been speculation that IEEE will never have more than 10 regions because of this!

IEEE publishes ~32% of all literature on electrical, electronic engineering and computing.

IEEE Region 10, sometimes referred to the Asia Pacific Region, comprises 4 regional Councils (Australia and New Zealand are two of these), 64 Sections, 4 Sub-sections, 211 Chapters and 245 student branches. It covers a geographical area stretching from South Korea and Japan in the north-east to New Zealand in the south, and Pakistan in the west. It has a membership of 58,162 (31 Dec 2001). The Region 10 website is at <http://www.ewh.ieee.org/reg/10/>, and meeting Minutes and Section/Council Reports are obtainable at this site. After some debate it was agreed that Afghanistan is in Region 8 ... not in Region 10!

The meeting was hosted by Director Region 10, Dr. Teck-Seng Low, from Singapore, and the Region 8 Director Levent Onural, was also present.

The program included an address from the IEEE President, Ray Findlay, a Canadian. In his address Ray Findlay provided many valuable insights into the strengths and weaknesses of the IEEE. Globalisation of IEEE is still a major thrust. Approximately 7,000 regional meetings (of all

types) are held annually and the average attendance/meeting exceeds 50. US members are on average 10 years older than non-US members but this is to some degree biased by the high student member numbers in the non-US regions. The considerable growth in student membership (including Student Branch numbers) relative to full membership represents a structural vulnerability for IEEE because the unit cost for service delivery to a student member is not covered by student membership fee. Ray indicated that 3 full members' fees were needed to cover the administrative costs of 1 student member and this is clearly an issue, which will need to be addressed in the future.

In addition, a meeting of the Australia Council was held during the Region 10 meeting (5 Apr 02, 0600-0800). The Australia Council comprises the Chairs of each IEEE Section in Australia together with the Australia Council Chair, a separately elected position. There are seven IEEE Sections in Australia and this is the only occasion annually when the Australia Council meets in person.

The costs of attendance at this meeting (1 delegate per Section) are met entirely by the Region 10 office.

*Michael Evans*

### Section Committee Officers for 2002

*Chair:* Dr Michael Evans

[michael.evans@ieee.org](mailto:michael.evans@ieee.org)

*Vice Chair:* Dr Miro Kraetzl

[miro.kraetzl@dsto.defence.gov.au](mailto:miro.kraetzl@dsto.defence.gov.au)

*Secretary:* Dr Tim Ferris

[timferris@ieee.org](mailto:timferris@ieee.org)

*Treasurer:* Dr Andrew Piotrowski

[andrew.piotrowski@ieee.org](mailto:andrew.piotrowski@ieee.org)

Chair SP/Comms Chapter: Dr Peter Shoubridge  
[peter.shoubridge@dsto.defence.gov.au](mailto:peter.shoubridge@dsto.defence.gov.au)

Chair AP/MTT Chapter: Dr Andy Kulesa  
[andy.kulesa@dsto.defence.gov.au](mailto:andy.kulesa@dsto.defence.gov.au)

Chair C/AES Chapter: Dr Mark Pszczel  
[mark.pszczel@dsto.defence.gov.au](mailto:mark.pszczel@dsto.defence.gov.au)

Chair Computer Chapter: Dr Thong Nguyen  
[thong.nguyen@dsto.defence.gov.au](mailto:thong.nguyen@dsto.defence.gov.au)

Chair UofSA Student Branch: Zhen-Dan BAO  
[BAOZY001@students.unisa.edu.au](mailto:BAOZY001@students.unisa.edu.au)

Chair U of Adelaide Branch: Leonard Hall  
[lthall@eleceng.adelaide.edu.au](mailto:lthall@eleceng.adelaide.edu.au)

## Membership

| Membership at 31 December 2001 |     |
|--------------------------------|-----|
| Members (all grades)           | 393 |
| Affiliates                     | 50  |
| Students                       | 65  |
| TOTAL                          | 508 |

### Senior Members

The following members have been elevated to Senior Member since the AGM in December 2001.

Kutluyil Dogancay [U. of South Australia]

Cheng-Chew Lim [U. of Adelaide]

Jinho Choi [U. of Adelaide]

Timothy Lindsay Ferris [U. of South Australia]

Derek Rogers [Motorola]

## Awards

### Region 10 Outstanding Volunteer Award

The South Australia Section nomination of Dr Andrew Parfitt, past chair of the SA Section (former DSTO employee, now working for CSIRO in Sydney) for an IEEE Region 10 Outstanding Volunteer Award was accepted. The award was announced at the Region 10 meeting in Bangkok. Dr Parfitt was one of 9 nominees, 4 of whom had been accepted. He was also the recipient of the first IEEE SA Section Outstanding Volunteer Award presented in 1999.

### Distinguished Service Award

A Distinguished Service Award (and Past Chair's pin) was presented to Dr Bevan Bates for his contributions to the Section over a period of more than 10 years. Bevan held Chair and Vice-Chair positions and was the foundation Chair of the IEEE South Australia AP/MTT Chapter. He was a member of the organising committee of the recent very successful APMC 2000 conference held in Sydney.

### IEEE SA Student Subject Prize

The Section annually presents an award to a student from each of the three universities in South Australia who has demonstrated outstanding performance at second-year level in a practical subject relevant to IEEE fields of interest. The program was established in 1992. This year's prize amount has been raised to \$500 and the award will continue to include two years of free student membership of IEEE. The awards are presented at the Student Paper Night in October.

### IEEESA Travel Grant

The Section has established a "Travel Grant" program to assist students and others to deliver conference papers at overseas venues. Two awards of \$500 were made in this category in 2001 and the amount set aside for this purpose has been raised to \$3000 for 2002. The individual maximum grant has been raised to \$1000.

## Technical Activities

### Joint Technical Program 2002

The IEEE SA Section shares the responsibility for a Joint Technical Program with the Institution of Engineers Australia (IEAust), the ITEE Society of IEAust, and the Institution of Electrical Engineers. The program consists of monthly meetings and visits on a range of topics. The 2002

program comprises 12 lectures and site visits. The JTP program is available on the SA Section website at [http://ewh.ieee.org/r10/s\\_australia/](http://ewh.ieee.org/r10/s_australia/).

### 2000 Asia-Pacific Microwave Conference, Sydney

The IEEE SA Section co-underwrote the 2000 Asia Pacific Microwave Conference held in the Wentworth Hotel, Sydney from 3 – 6 December, 2000. IEEE NSW Section, IEEE MTT Society and CSIRO were co-sponsors. The event was led by Dr Trevor Bird FIEEE, with Dr Andrew Parfitt as Technical Program Chair and Dr Michael Evans as Finance Chair. Attendance significantly exceeded projections and in technical quality it was also a great success. The conference was wound up in late 2001.

### Information Decision and Control, 11-13 Feb 2002

'2002 Information, Decision and Control' at the Festival Centre in Adelaide, attracted over 140 scientists, engineers and mathematicians working across the disciplines of signal processing and communications, decision and control, and data and information fusion. Following the success of IDC 99, IDC 2002 incorporated the third Australian Data Fusion Symposium.

The Conference emphasized the implementation of large interconnected and distributed systems such as military C4I systems, communication networks, distributed sensor networks, large scale distributed control systems, and multi-platform autonomous vehicle applications, with the central theme on this occasion being "Autonomous Vehicles".

Under the chairmanship of Professor Lang White, (University of Adelaide) and the program committee Professor Iven Mareels (U.Melb.), Assoc. Professor Jim Schroeder (CSSIP), Dr K-C Wong (U.Syd.) and Dr Subash Challa (U.Melb.), a strong programme of five keynote and plenary addresses focused on three of the critical technologies needed for the design and analysis of modern distributed information and decision systems, and two addressed the autonomous vehicles theme. There was strong international participation (30 registrants from 15 countries), and in all 75 papers were delivered. Three off-conference tutorials were also delivered that is an encouraging result for an event of this size.

DSTO, CSSIP, CSIRO and the Sir Ross and Sir Keith Smith Fund were financial supporters of this event, and their support is gratefully acknowledged.

*Dr Michael Evans, Chair*

*Organising Committee IDC 2002*

### Chapter Activities - Synopsis of 2001

The C&SP Chapter held two seminars and hosted one IEEE Distinguished Lecturer, Dr Salah Aidarous who spoke on the "IP Impact on the Evolution of Telecommunications Networks".

The AP/MTT hosted one technical meeting concerning the implications of spectrum allocation regulations in Australia. The meeting was held in September. A seminar was presented in November by Dr Fazal Ali, distinguished IEEE lecturer on the subject of power amplifiers for mobile handsets.

The CAES Chapter held seven technical meetings on topics ranging from GPS to human space exploration,

several in conjunction with AIAA and RAeSoc. A highlight of the program was the repeat of the 11th Dr K. Millicer Lecture (sponsored annually by RMIT) by the retiring Director of the DSTO Aeronautical and Maritime Research Laboratory, Dr Bill Schofield.

The Computer Chapter held three seminars on "Cluster Computing: Architecture and Applications", "Future Junction Technologies for Sub 0.1 Micron Silicon Based Devices" and "System on a Chip and Embedded Systems".

#### **IEEE Robotics and Automation Society**

##### **Prof. T.J. TARN - Distinguished Lecturer**

*Fusion of Human and Machine Intelligence* was the title of Prof Tarn's address at DSTO on 6th March to a mixed audience of over 100. Prof Tarn presented an analytical scheme to integrate the heterogeneity of human and robot functions to achieve human friendly robotic operations.

He has received many awards. In particular, he was the recipient of the prestigious Joseph F. Engelberger Award of the Robotic Industries Association in 1999.

Prof. Tarn was the first DL of the IEEE R&A Society to visit South Australia and his visit was sponsored by the C/AES Chapter. His visit was assisted by Assoc. Prof. Ljubo Vlacic of Griffith University who chairs the Queensland Control/R&A Chapter and air travel from Brisbane was supported by DSTO.

#### **IEEE Antennas and Propagation Society**

##### **Distinguished Lecturer Program**

##### **Visit by Dr Tapan Sarkar, April 2002**

Dr Tapan Sarkar is a Professor in the Department of Electrical and Computer Engineering, Syracuse University, Syracuse, New York and an AP-S Distinguished Lecturer for 2001-2. His current research interests deal with numerical solutions of operator equations arising in electromagnetics and signal processing with application to system design. He has authored or coauthored more than 210 journal articles and numerous conference papers and has written ten books and chapters in 28 books.

Dr Sarkar visited Adelaide from 5<sup>th</sup> to 10<sup>th</sup> April and gave three lectures during his visit. He also held discussions with staff at CSSIP, DSTO and Adelaide University. During the remainder of his Australian tour, Prof Sarkar will be visiting [or visited] Perth, Townsville, Brisbane, Sydney, and Melbourne.

On Monday 8th April, Dr Sarkar gave a lecture entitled "A Pragmatic Approach to Adaptive Antennas" to an audience of about 30 people at the SPRI Lecture Theatre, University of South Australia, Mawson Lakes. He presented a novel methodology utilizing the direct data domain approach based on spatial samples for the efficient computation of the adaptive weights in a phased array system.

The following day he gave a lecture "A Deterministic Least-Squares Approach to Space Time Adaptive Processing" as part of a workshop on Adaptive Antennas and Space-Time Adaptive Processing organized jointly by the SA IEEE AP/MTT Chapter and CSSIP. This lecture was in effect a continuation of Monday nights lecture concentrating more on the applications of adaptive antennas. The workshop, held at CSSIP also including local speakers from CSSIP, DSTO and Adelaide University and covered topics in sonar, navigation and communications as well as radar. The attendees represented a good mix of academic, industry and government personnel.

The third lecture "Generation of Broadband Electromagnetic Response from DC to Daylight on Your PC" was held at the University of Adelaide Electrical and Electronic Engineering Department. Dr Sarkar demonstrated that by utilizing early time and low frequency data, the complete electromagnetic response of any object, however electrically large it may be, can be generated. The low frequency and the early time data contain mutually complementary information. By using this mutually complementary data, simultaneous extrapolation in time and frequency domains are carried out.

## **NEWS**

#### **IEEE Information Theory Australian Chapter**

The future affiliation of the Australian IT Chapter was discussed at the recent IEEE Australia Council meeting and it was agreed that IEEE SA Section will provide a proposal for the affiliation of the IT Chapter to the SA Section. NSW reported that was not sufficient interest in establishing a separate IT Chapter in NSW. There was support for the concept that the IT Chapter members' wishes to remain a single Australian Chapter should be observed.

#### **Nanotechnology Council - New**

This Council has recently been formed (Feb 2002) and with the current interest in MEMS, concurrent microelectronics such a mobile telephony and GPS, there may be enough interest to form an interest group (known in IEEE parlance as an "affinity group") in South Australia. The current Chair of the Nanotechnology Council is Toshio Fukuda, a robotics guru and Director of IEEE Division 10. This IEEE division covers a number of the IEEE Societies including Control, Robotics and Automation, and many others. If you are interested in joining/forming a nanotechnology interest group please contact Tim Ferris (timferris@ieee.org).

#### **EE/IEEE/IEAust Memorandum of Understanding - "The Tri-Partite Agreement"**

There was discussion of the Tri-partite agreement (IEEE/IEAust/IEE MOU) by the IEEE Australia Council and a number of issues of concern were discussed. It was agreed that the IEEE Australia Council did not support the MOU in its current form. The issues of contention were 1) the perceived constraint on the recruitment of student members, 2) the practice in relation to the handling of IEEE conferences held in Australia, and 3) the implication of the encouragement to provide a single (joint) point of delivery for member services.

#### **Email and Newsletter Activities**

Did you know that you could establish an email address **joe.blow@ieee.org**? This is a forwarding address to your current email address (not a postbox), which can remain a fixed point of contact even though your actual email address changes (of course you have to keep the forwarding address up to date). It is easy to arrange over the web (start at <http://www.ieee.org/organizations/pubs/newsletters/eds/oct98/email.htm> and follow the instructions). You will need your IEEE membership#.

Like many other Sections, the SA Section is moving to rely more on electronic communications, although a printed newsletter is still being produced (but less often). Discussions on the most effective way to use email are continuing. IEEE policy requires members to **positively** confirm that they are happy to have their email address used for IEEE business. Please advise Tim Ferris (timferris@ieee.org) if you are happy to receive correspondence (eg. newsletter) from IEEE SA via email.

## 2001 Financial Report

### Income/Expense

|     | Income                   | Actual 2001      | Budget 2002      |
|-----|--------------------------|------------------|------------------|
| 2.5 | Conference Revenue       | 16,548.75        |                  |
| 3.1 | Section Rebate           | 8,291.30         | 8,500.00         |
| 3.2 | R10 Rebate               | 1,214.68         |                  |
| 3.4 | Interest                 | 2,778.18         | 3,000.00         |
|     | <b>TOTAL INCOME</b>      | <b>28,832.91</b> | <b>11,500.00</b> |
|     |                          |                  |                  |
|     | Expenditure              |                  |                  |
| 4.1 | Meetings (Section        | 1,048.70         | 1,000.00         |
| 4.2 | Publications             | 6,412.55         | 1,500.00         |
| 4.7 | Professional             | -1,310.27        | 1,300.00         |
| 4.8 | Student Activities       | 798.16           | 900.00           |
| 4.8 | Grants/Awards            | 1,900.00         | 4,600.00         |
| 5.2 | Travel(R10,              | 1,203.30         | 500.00           |
| 5.5 | Support to Chapters      | 8,000.00         | 1,200.00         |
| 5.5 | Support to Regions       | 546.00           |                  |
| 5.6 | Other Office             | 116.60           | 500.00           |
|     | <b>TOTAL EXPENDITURE</b> | <b>18,705.14</b> | <b>11,500.00</b> |
|     |                          |                  |                  |
|     | <b>NET</b>               | <b>10,117.87</b> | <b>0.00</b>      |

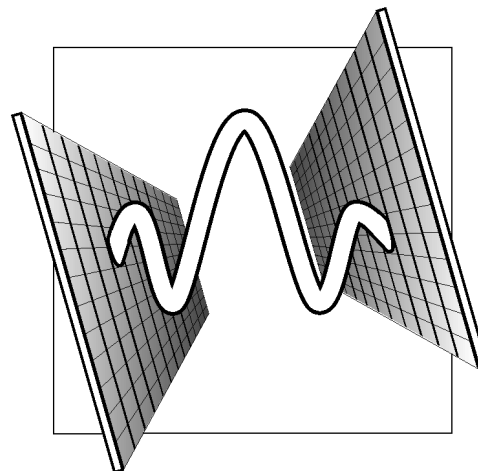
### Balance Sheet, 1 Jan 02 Cash Assets

| Unit            | Cheque Account | Term Deposit |
|-----------------|----------------|--------------|
| SA Section      | 54,259.92      | 60,000.00    |
| SP/Comms        | 5,703.42       | 5,000.00     |
| ANN RIG         | 6,632.48       | 5,000.00     |
| AP/MTT          | 2,697.06       | 5,000.00     |
| CASE            | 655.29         | 5,000.00     |
| Computer        | 1,555.84       | 5,000.00     |
| U of SA Student | 5,474.67       |              |

### Loans, Advances, Borrowings

|                           |              |
|---------------------------|--------------|
| IDC 2002 Conference       | \$5,000.00   |
| ANZIIS \$5k held in trust | (\$5,000.00) |
| Accounts Payable          | (\$300.00)   |

## CONFERENCE ANNOUNCEMENTS



# Radar 2003

**Australian International Conference on Radar  
Adelaide, Australia, 3-5 September 2003  
Sponsored by CSSIP and IEEE SA Section  
Preliminary announcement**

Australia has now joined the five-nation series of annual international radar conferences. This series involves the US, UK, China, France and now, Australia. The conference for 2002 is being hosted by the UK in Edinburgh over the period 15-17 October 2002 and the Australian conference will continue the annual series with its event 3-5 September 2003, to be held in Adelaide, South Australia. The first call for papers for Radar 2003 will be released shortly.

Radar 2003 will cover all aspects of radar systems for civil, security and defence applications. Tutorials are being planned in a number of fields of radar technology

Topics to be covered at Radar 2003 include (but are not confined to):

Radar Systems, Dual-Use/Civil Applications, Antenna and Component Technology, Radar EW, Environment and phenomonology, Processing Techniques, Emerging Technologies, Computer Modelling, Radar Simulation, Electromagnetics

### Conference Organising Committee

Appointments are currently being made to the organising committee. Current appointments are as follows.

Professor Don. Sinnott, CSSIP (General Chairman)

Dr Bevan Bates, DSTO (Technical Program Chairman)

Dr David Heilbronn, DSTO (Promotion and publicity)

For initial inquiries and to register for receipt of the call for papers refer to the Conference General Chairman, Professor Don Sinnott, e-mail [don.sinnott@ieee.org](mailto:don.sinnott@ieee.org). The website is [www.cssip.edu.au/conferences/radar](http://www.cssip.edu.au/conferences/radar).