

SMBE

Adelaide
Nov 10



SMBE Christmas Dinner

Tuesday 30 November
The British Hotel, North Adelaide

Our major social function for the year is with us again. This year we are going to the British Hotel, but we will be upstairs in their private function room where there is also a dedicated bar. For \$25/head, there will be an antipasto entree, choice from 3 main courses followed by a choice from 2 desserts. Drinks will be at your cost this year. The main course choices will have beef, chicken or fish styles. The Finniss function room has limited capacity, so don't leave your RSVP too late. If you require a vegetarian, gluten free, or vegan meal, please let us know with your RSVP.

Payment in advance

\$25/person

Partners welcome

Use EFT* (and you can pay your subs at the same time! \$35 for full members, \$15 for students)

Account Name: **SMBE**

BSB: 065-006

Account Number: 10108888

Description: Your name, XMAS, number of guests, (+SUBS)

RSVP

By 22 November 2010

Full names of yourself
and any spouses, guests,
etc. to Tony Carlisle

Tony.Carlisle@health.sa.gov.au

*Electronic Funds Transfer



We will also have fantastic door prizes you will not want to miss!

SMBE Awards

Biomedical Engineering Outstanding Honours Project Award
'...awarded to a biomedical engineering student for their superior work towards their honours project...'

The Biomedical Engineering Outstanding Honours Project Award 2010 was presented to Paul Colquhoun for his Flinders University final year project: **Wireless Body Sensor Networks**.

There were several final year projects on show at the Flinders University Expo in 2010 and all of them were impressively presented, showing not only a high calibre of communication skills, but also a passion for their work.

Paul's project investigated a wireless body network to monitor physiological parameters in a home health care environment. On the day Paul demonstrated a two node network which measured his ECG and temperature and transmits the data to a computer for display on a custom graphical user interface.

Paul was awarded one year membership and \$500 cash for his excellent work.

Congratulations Paul.

Olivia Lockwood
SMBE President



Paul Colquhoun and Olivia Lockwood

SMBE (SA) Biomedical Engineering Scholarship

A scholarship is provided to advance knowledge amongst Biomedical Engineering practitioners in South Australia and Northern Territory. The scholarship is financial support (up to \$1000) to attend or present at a biomedical engineering conference or institution.

The Biomedical Engineering scholarship is open to all SMBE members from within SA and the NT who have been members of the SMBE (SA) for at least three years. Find details in the Awards page on the SMBE (SA) website

http://www.smbe.asn.au/SMBE_SA/SA_Awards/SA_Scholarship/SA_Scholarship.htm

Evolution of the Pulse Oximeter

On the 12th May Paul Mannheimer, consultant and technical adviser for Nellcor/Covidien presented '***The evolution of improved Pulse Oximetry and the impact on clinical performance and opportunities***' for the SMBE, Engineers Australia and ACPSEM technical program.

Paul opened with a description that "reliable and accurate pulse oximetry requires the design and operation of the entire system to function together". This includes not only sensor technology, but also cabling, front end electronics, signal processing, event recognition and communicating information to the user to suit their needs.

Paul worked at Nellcor/Covidien between 1987 and 2008 and offered detailed insight into their product development essentially spanning five generations of pulse oximeters where the first generation units were produced in the early 1980's (N100 series) up to the latest N600 series which now includes 'variable cardiac gated averaging' along with each current generation sensor containing a digital memory chip.

Paul ran through some interesting pulse oximeter history and showed a picture of the first pulse oximeter, a Nihon Kohden unit from 1975. Paul went on to show an interesting video of a hypothermic patient who had a couple of 'other' brand pulse oximeters attached to their fingers which were being compared to a Nellcor forehead unit. This patient was also volunteering to have a hypoxic event under the control of an anaesthesiologist. It was a bit eerie to watch knowing what was happening but it demonstrated very well that not all pulse oximeters are equal and some thought is required for optimum sensor choice, positioning and attachment.



Nellcor N100



N600

Paul ended by showing some amusing slides citing examples of where not to place pulse oximeter sensors. Overall I found this an enjoyable presentation from someone who is not only very knowledgeable with his topic but also quite passionate about pulse oximetry.

Thanks to Covidien for sponsoring Paul's visit and for supplying food and drinks.

Tony Carlisle
SMBE Vice-Chair

Standards Activities and Update

Adrian Richards, SMBE Committee Member

There are currently two standards, that are very relevant to practicing clinical engineers in particular, that are undergoing a revamp. These are AS/NZS 3003 that covers the electrical wiring within patient areas and AS/NZS 3551 that specifies the scope of a medical device management program. Both of these are somewhat unique to Australia with few other countries in the world having equivalents. This reflects back to the days when Australia was at the forefront of standards development in the BME field, we are still reaping the rewards today having such comprehensive documents aim at ensuring patient safety. SMBE members have had the opportunity to attend workshops on both of these in recent months, both of these being run by the respective chairs of the standards committees, Stuart Clifton for 3003 and Mike Flood for 3551

AS/NZS 3003 has been under continuous review for some years to ensure that it remains relevant and reflective of current thinking. One aspect of patient area wiring that has been poorly interpreted or applied for many years is the overspecification of cardiac protected areas. New or redevelopment projects has often specified cardiac protection where it is arguably un-necessary due to the belief that it is "better" or "safer". The new version of the standard is set to address this by clearly specifying, via an exhaustive list, what should be treated as body protected. If people overspecify and, for example designate a general ward as cardiac protected, it will in fact be in breach of the standard and may fail commissioning. This is a great step forward that will help with good decision making. The new edition is also set to include in-service testing procedures, the current version has commissioning guidelines only. This will give clear guidance to staff performing area testing as to what they should and should not be doing. There are many other variations and enhancements including a clear requirement that areas should be upgraded to meet the standard if a certain proportion of additional facilities, eg power outlets, are added to an existing area. The new edition has been through the public comment stage, feedback has been taken on board and the final version been to committee vote. It should be published in the quite near future. Having the ability to discuss the detail with Stuart was invaluable, he is arguably the most knowledgeable BME in the country on this topic. After the release of the standard we are planning to convene a further workshop at which the practical interpretation and application of the new edition will be worked through in much more detail. Watch this space.

AS/NZS 3551 is seen by many BME and CE departments as their handbook. That said it has long been criticised as being out of date and not providing sufficient guidance to assist people with taking a standardised approach. Mike Flood convened a workshop for us here in Adelaide as part of the public comment phase of the development of the standard. Much opportunity had already been presented to the BME community to become involved and provide input and the series of roadshows, of which we were a part, was the culmination of that consultative process. Time lines were tight due to Standards Australia imposing some stringent deadlines, but an enormous effort by the committee and other interested parties produced a document that looks like it will serve us well.

Clear enhancements included:

- Placing much greater accountability with health unit executives for having a device management program established.
- Clear emphasis on having a ISO9000 style quality framework in place.
- The need to embrace risk management principles in determining routine service and testing regimes ie moving away from the "test every 12 months" mantra.
- More encompassing content embracing the "cradle to grave" cycle of device management.
- Attempts to address the fact that a 3551 BME based testing program should take precedence over OHS driven "testing and tagging" requirements.
- Good examples of risk management application to assist with real life applications of the principles.

Again it was invaluable having the committee chair convening the workshop, this provided a depth of insight that was very useful in submitting comments on the draft. This standard is due to be finalised by the committee this year and should be published not too far into 2011.

Overall people attending these workshops found themselves "ahead of the game" in terms of having an understanding of the direction of both of these documents. In planning services, projects and developing strategies this avoids the need to play catch-up once the standards hit the streets.

EPSM-ABEC 2010 : DEC 5 - 9 Melbourne

The Engineering and Physical Sciences in Medicine and the Australian Biomedical Engineering Conference for 2010 will bring together physical scientists and biomedical engineers, providing an excellent opportunity for us to share ideas, innovations and solutions. Together we can reinforce successful associations in teaching, research and the clinical application of physical sciences and engineering in medicine.

EPSM - ABEC 2010 will take place at the prestigious Melbourne Cricket Ground in Victoria, from 5 - 9 December 2010.

We look forward to seeing you in Melbourne - *it's all about the coffee!*

Hosted by: Engineers Australia, ACPSEM and SMBE



EPSM-ABEC 2011 : AUG 14 - 18 Darwin

August 2011 will be here before we know it!

That means another **EPSM-ABEC conference** is fast approaching, and this time it will be *THE* conference of the year for all medical physicists, biomedical engineers, technicians, company reps, radiation safety workers and mining workers to attend. Join us for this first ever **Darwin** gathering which will be a unique, exciting, and invigorating event to be held at the dazzling **Darwin Convention Centre, NT**.

We are proud to announce our 2011 **Keynote Speakers**, the distinguished **Prof David Brenner**, **Prof Wolfgang Dorr** and **Dr Joseph Smith**.

Vist www.epsmabec2011.org/ for more info

News From Our Members

Lachlan Eberhard, committee member of the SMBE has been awarded **two** prizes for his excellent effort in presenting his Final Year Honours project. Lachlan's Honours project was part of his University Biomedical Engineering degree.

Lachlan presented his work, '**Clinical Engineering Maintenance Programs under the Microscope**' at both competitions where he competed against both Honours students and Postgraduates students from South Australian Universities.

On the 26th Oct, Lachlan won the **2010 IET Rex Johns Student Paper Prize** and on the 8th Nov, he won the **EA College of Biomedical Engineers 2010 Students Paper Prize**.

Lachlan will now go on to represent the state at the Australasian level of IET Write Around the World competition in Perth next year.

On behalf of the SMBE congratulations Lachlan and we wish you good luck for the next stage of the competition.



SMBE 2010 AGM

Olivia Lockwood

The Society's AGM was held on Wednesday 17th August 2010 at The Einsten Cafe, Thebarton.

The evening commenced with our guest speaker Justin Brookes who gave a very interesting presentation entitled "The Coorong Story: A Changing Ecosystem but There is Hope". All that attended were educated in the current state of the Coorong and how the states water usage is impacting on the Corrong's Ecosystem.

"The loss of diversity with increasing salinity along the Coorong is common across all taxonomic classes: birds, fish, plants and benthic fauna. Fortunately the moderately hypersaline ecosystems of the South Lagoon are retained within the Coorong but these have contracted into the southernmost sections of the North Lagoon. The consequence of this contraction is a loss of resilience for this system to cope with further change. As salinity increases there is a decrease in biodiversity which means there are potentially less food sources available". Justin Brookes

Thanks must go to Adrian for suggesting once again a terrific speaker for the night.

Council Elections

Following the presentation the council meeting began. The positions of President, Immediate Past President, Secretary and 2 Councilor positions became vacant.

Nominations were received as follows:

- President: Olivia Lockwood
- Immediate Past President: Robin Woolford
- Secretary: Donna Weckert
- Councilors: Adrian Richards, Maged Shenouda

All were elected unopposed.

The President report below that follows summarises the year's activities.

President's Report 2010

1. **Membership.**
Membership levels were maintained this year and the treasurer's report has details of member numbers.
2. **2009/2010 meetings included:**
SEPT 2009: AGM
Jeremy Austin – Reconstructing the past to inform the present: ancient DNA analysis of extinct and threatened species.
OCT 2009 : Technical Talk
Hala Zreiqat, Uni Sydney, Addressing the need to improve and engineer better biomaterials
DEC 2009: Xmas Dinner – thanks to Tony C for organising this event
The Earl Of Leicester.
DEC 2009: 2009 Student paper Night
A public speaking competition for Engineering and Medical Physics students.
FEB 2010: Technical Talk
Andrew Tonkin, Terumo Technical Update
MAY 2010: Technical Talk
Stuart Clifton, AS/NZS3003 – Electrical Installations Patient Areas
MAY 2010: Technical Talk
Paul Mannheimer, Nellcor/Covidien, The evolution of improved pulse oximetry and the impact on clinical performance and opportunities.
JUN 2010: Technical Talk
John Brydon, Patently Obvious? Biomedical Engineering Excursions into the Intellectual Property Maze.
JULY 2010: Technical Talk
Sydac Pty Ltd, Developing Training Simulators – a software engineering prospective
3. **SMBE Australia website.**
The website continues to be the main source of information for SMBE members across Australia. Anne-Louise is continuing to try her best to keep the webpage up to date and on behalf of the committee we wish to thank her for the tremendous work she has done in maintaining this site.
4. **Awards**
The **SMBE Biomedical Engineering Encouragement Award** for 2009 was not awarded. The committee will be calling for nominations near the end of the year for the 2010 round.

The **SMBE (SA) Outstanding Honours Project Award** is awarded to a biomedical engineering student for their superior work towards their honours project. The award is based on practicality of the design, project development and outcomes and explanation of work at the Expo Day. The award is in the form of a \$200 cash prize, a certificate and 12 months free membership to the SMBE (SA). The 2009 award was won by Madeleine Yates for her project "*EEG Analysis for Epilepsy –Identifying, Quantitating, and Comparing Peaks in EEG Spectra*". The 2010 award winner will be determined at the Flinders Uni Expo day in November this year.
5. Finally I would like to thank all the committee for their work during the year and thanks also to our sponsors. A special thanks to those committee members who will be standing down this year and who will be re-standing for their efforts during their term in office.

IMPORTANT MESSAGE



TITAN 400W Lightsources

Some customers have inadvertently fitted standard 300W replacement modules into the 400W lightsources with less than desirable results. Changes have been made.

The 400W unit is now being shipped is fitted with a locating pin that matches a corresponding hole in the correct lamp housing to avoid confusion. Correct module codes are:

TITAN 300W **SSX-0035**
TITAN 400W **SSX-0040**

Any questions? Please contact us: 1800 032 404.



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E: endovision@bigpond.com



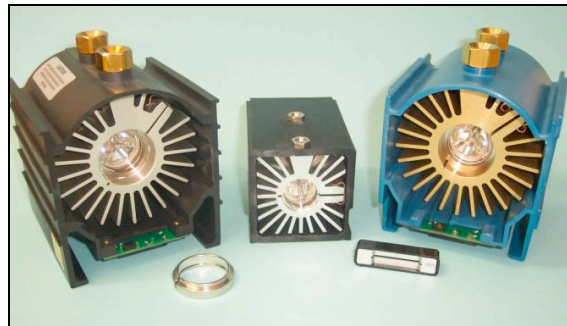
Luxtel is committed to bringing cost effective after-market Xenon lamp replacement solutions to the medical industry. No more paying "over the top" prices for OEM lamps.

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Stryker	X7000	CL1492*

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