

July 2018



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www.ans.org.au

Australasian Neuroscience Society Newsletter



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Message from the President

“The human brain is by far the most complex organ known. It is the interpreter of the senses, the generator of language, and the seat of consciousness. It is truly the Crown jewel of the body. On the other hand, that’s the brain talking - it may be biased.” Prof John Bekkers, Eccles Institute of Neuroscience, John Curtin School of Medical Research, Australian National University.

Can you come up with an engaging neuroscience quote? I'd love to hear it (richards@uq.edu.au)



Prof Linda Richards

*PhD, FAA, FAHMS
President, ANS*

Major scientific discovery often follows advances in technology. Science and technology are so inextricably linked that most science would be impossible without the innovative equipment and tools we use in the laboratory or the field. Access to new technology and its reproducibility are due to innovative companies that develop, manufacture and distribute them. The ease with which we can access these can mean that we take technology, and the companies involved, for granted.

I recently attended a talk by Dr Tim Harris from Janelia Farm, main inventor and developer of the Neuronexus Probe (<https://www.ncbi.nlm.nih.gov/pubmed/29120427>). This innovative technology allows for multiple recording sites, at varying depths from the brain’s surface, from a single micro-thin silicone probe. The diameter of these probes means that they do minimal damage to the brain as they are inserted and makes it possible for multiple probes to be inserted in the same brain, providing the possibility for circuit level multi-site

recordings. New versions of the probe are underway, but I learned that the prototype probe took 10 years and 4.5 million Euros to produce. A large number of prototypes were developed, manufactured and tested until the team settled on the optimal probe configuration. Technology development takes time, is costly, requires trial and error, and is mostly driven by engineers and physicists.

Some innovators develop their own prototypes, but it is industry that can take such an idea and develop it into a product that is stable and performs reliably and reproducibly in any laboratory. This area of science – neurotechnology development – is so crucial to our collective endeavour to understand the brain, that we should never take it for granted.

The Australian Brain Alliance has highlighted the importance of neurotechnology development and application in our case for Federal funding of the Australian Brain Initiative. We aim to support and develop the fledgling neuro-technology sector in Australia. Part of this includes attracting the best and brightest engineers, physicists, mathematicians and computer scientists to neuroscience by providing new ways to support their interactions with existing neuroscience laboratories.

Another way that each of us can support industry is to ensure that we take full advantage of the opportunity to interact with industry at our annual Australasian Neuroscience Society meeting.

The next ANS meeting will be held in Brisbane, December 3-6, 2018.

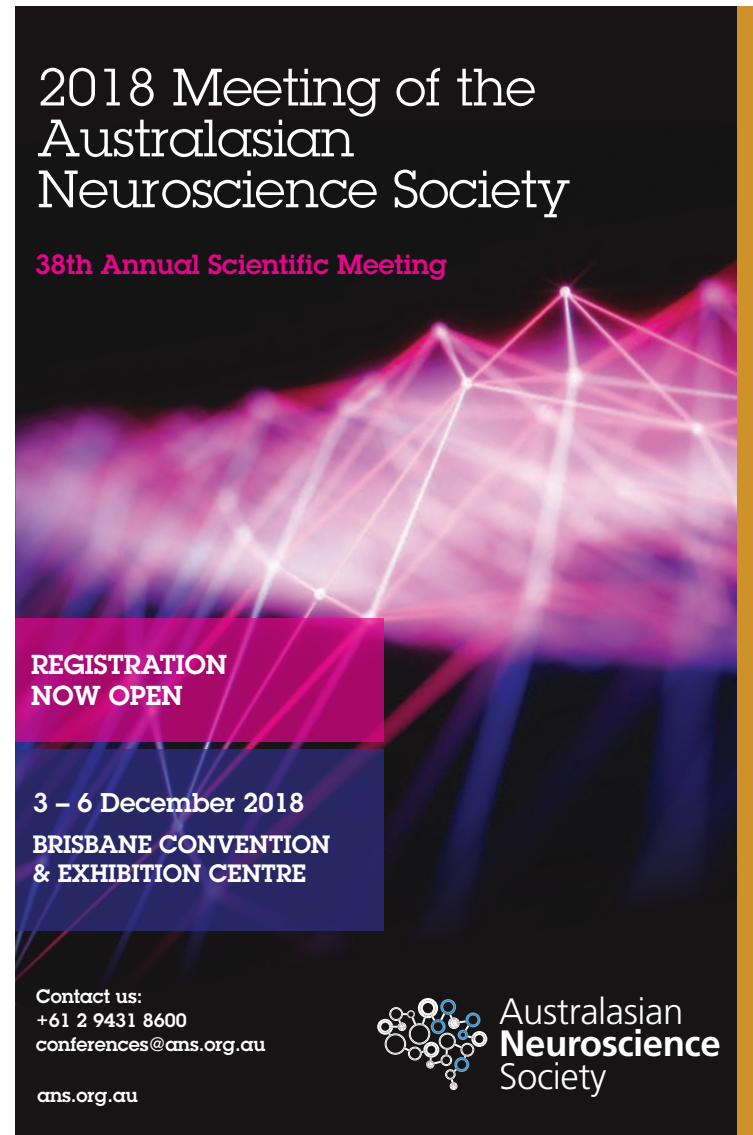
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*(Message from the President
...continued)*

To facilitate interactions between neuroscientists and industry we will be providing lunch and tea breaks in the trade display area, as well as having the poster boards displayed alongside the trade displays. In addition, we will be holding one or more social events that highlight an area of science or technology and provide conference participants with a relaxed, social environment in which to interact with scientists in industry. Many of the industry partners for ANS develop innovative technologies and their scientists will be on hand to discuss ideas for new technological advances. You have the opportunity to help push science forward through these interactions and I encourage all conference participants to take advantage of this important opportunity.

Finally, our five-year ANS Strategic Plan has been finalised and is now on our website. This will provide the new Council and President with a roadmap for the next five years, and will give members a way to measure the Society's progress against our performance indicators. I thank all members who gave feedback and worked hard to put this plan together.

ANS Annual Meeting – Brisbane 2018

The poster features a dark background with a network of glowing pink and purple lines connecting various points, resembling a neural network or data visualization. The text is white and pink. A pink box highlights the registration status, and a blue box highlights the dates and location. The ANS logo is at the bottom right.

**2018 Meeting of the
Australasian
Neuroscience Society**


38th Annual Scientific Meeting

**REGISTRATION
NOW OPEN**

3 – 6 December 2018
**BRISBANE CONVENTION
& EXHIBITION CENTRE**

Contact us:
+61 2 9431 8600
conferences@ans.org.au

ans.org.au

 **Australasian
Neuroscience
Society**

Registration is now open for the 38th Annual Scientific Meeting of the Australasian Neuroscience Society.

The meeting will take place at the Brisbane Convention and Exhibition Centre from Monday 3 December to Thursday 6 December 2018.

The ANS Annual Meeting is the largest annual conference for neuroscientists in the Australasian region. This year we have again included lunches in the basic registration price. We have also substantially reduced the student registration fee compared to 2017.

With five plenary lectures and a broad range of symposia topics spanning most areas of neuroscience, this will be an exciting meeting!

July 2018

(ANS Annual Meeting -
Brisbane 2018 ...continued)

Call For Abstracts Now Open

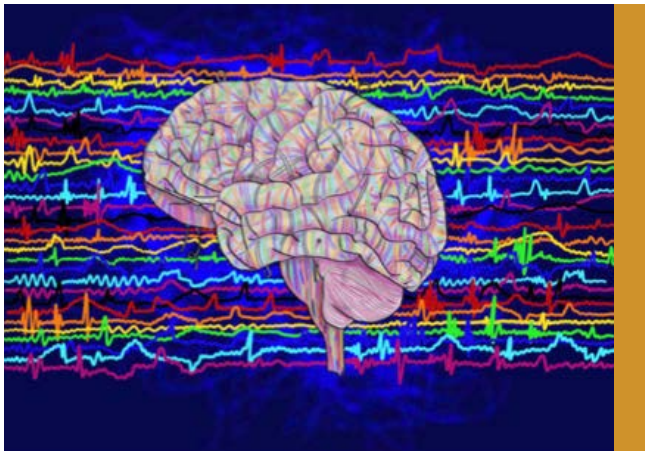
The Australasian Neuroscience Society invites you to take part in the 2018 Annual Scientific Meeting by submitting an abstract for a poster or oral presentation. You must register for the conference before you can submit an abstract.

The meeting will provide a platform for advancing our understanding of the challenges of nervous system health and disease. Extended periods will be provided for poster presentation and discussion. Submissions are encouraged from across all research areas represented within the membership.

The research themes are as follows:

- Development
- Neural excitability, synapses and glia
- Neurodegenerative disorders and injury
- Sensory systems
- Motor systems
- Integrative physiology and behaviour
- Motivation and emotion
- Cognition
- Neuroimaging and brain mapping
- New techniques in neuroscience
- Neuroengineering
- Neuroethics
- History and education

Please carefully read the Call for Abstract guidelines prior to submission. Further information can be found on the ANS Website.



Notification of ANS Annual General Meeting



The ANS Annual General Meeting will be held from 5.45pm to 7pm on Wednesday, December 5th 2018, in the Great Hall, Brisbane Convention & Exhibition Centre during the annual conference in Brisbane.

Members are invited to submit motions for consideration by the membership at the AGM.

Any submitted motion must be seconded by another member of the Society, and must be accompanied by a statement by the proposer explaining the rationale for the motion. The motion must be received by the Secretary (kay.double@sydney.edu.au) no later than COB Wednesday, 5th September 2018.

Election of Ingrid Scheffer to the Royal Society

In May 2018, Professor Ingrid Scheffer was elected a Fellow of the Royal Society of London. A clinical epileptologist as well as a research scientist, Ingrid's work in the field of genetic epilepsy is improving the lives of affected individuals and their families on a local and global scale.



Ingrid Scheffer

Lauren Bleakley

*PhD Student
Florey Institute*

Epilepsy is a serious neurological condition characterised by seizures. Prior to 1995, epilepsy was thought of as primarily an acquired condition. This assumption was demonstrated to be inaccurate by ground-breaking research conducted by Ingrid and colleagues, who discovered the first gene linked to epilepsy. Their findings, published in 1995, led to a paradigm shift in scientific understanding of the causes of epilepsy and opened up a new field of research.

Since then, increasing numbers of genes have been directly linked to forms of epilepsy. More than half of these known epilepsy genes were first reported by Ingrid and her colleagues.

These genetic discoveries have been tremendously influential for many epilepsy patients and their families, who finally have an explanation for the cause of their or their loved one's seizures, often after a long road of medical tests. They have also resulted in the development of more targeted therapies for patients, often leading to more effective treatment.

As well as making her mark on the world research stage, Ingrid also conducts life-changing work in her role as a paediatric epileptologist, working directly with affected children and their families. Several days after her appointment to the Royal Society, Ingrid presented an information session about epilepsy to a group of parents and carers of children with various epilepsy conditions. I was fortunate to attend this session and hear about the impact that epilepsy has on families' lives. It was heartening to see, first-hand, the significant reassurance that audience members gained from hearing Ingrid speak, and how they were buoyed by the knowledge that Australia is at the forefront of world-leading research into the genetic epilepsies.

As a long-time active advocate for women in science, and as a clear leader in her field for decades, Ingrid is an inspirational member of the Australian scientific community. Her election as a Fellow of the Royal Society is confirmation of her international scientific eminence and highlights the significant impact that her efforts have had in improving the lives of people with epilepsy and their families. We warmly congratulate Ingrid on this admirable achievement.

Cracking the Brain's Code – Australian Brain Alliance

The Australian Brain Alliance, an initiative of the Australian Academy of Science, was formed in 2016 with a defining mission: to position Australia for a century that will be defined by the outcomes of brain research.



Comprised of Australia's leading neuroscientists and psychologists, the Australian Brain Alliance (ABA) is a consortium of universities, research institutes and leaders in industry with a common vision to transform the Australian brain research sector into one that will deliver a step change in our understanding of the brain, and in turn will offer enduring social, health and economic outcomes for all Australians.

The ABA has been established to advocate for the Australian brain sciences sector, specifically for the establishment of an Australian Brain Initiative that will:

1. coordinate Australian brain science research through a national brain initiative
2. make advances in the diagnosis and treatment of brain disease and disability
3. create economic opportunities that will be powered by the study of the brain, and
4. put Australia at the forefront of next generation science.

In March 2018 the ABA launched the sector's national campaign for an Australian Brain Initiative, to Crack the Brain's Code, at Parliament House in Canberra.

Over three days, 30 brain researchers from across Australia met with more than 80 parliamentarians and their advisors, from both the House of Representatives and the Senate.

The exposure the brain researchers had to parliamentarians made the campaign launch one of the most highly successful parliamentary engagement activities ever undertaken by the brain sciences sector.

Along with the launch at Parliament House, another major aspect of Crack the Brain's Code is calling on researchers in the brain sciences sector – as well as members of the public – to become a pledged Brain Champion (<https://www.brainalliance.org.au/join-us>).

A Brain Champion is someone who supports a national mission in brain research through the establishment of an Australian Brain Initiative. The more Brain Champions we have, the stronger our voice in Canberra becomes.

To find out more about the Australian Brain Alliance visit: <https://www.brainalliance.org.au/> or contact info@brainalliance.org.au. You can read the Australian Brain Alliance's vision for the future of Australia on the Neuro-Frontier. Follow us on Facebook, Twitter and Instagram.

Khaled Chakli

*Director, Australian
Brain Alliance*

Kioloa at Newcastle



Plenary speakers and prizewinners

[L-R] Guthrie Dyce, Mark Gradwell, Lauren Poppi, Melissa Tadros, Rebecca Lim, Suellen Walker.



Uninvited guest at the poster session.

I was looking forward to attending this year's "Kioloa at Newcastle" Neuroscience Colloquium, held on the 19th-20th of May, 2018, and organised by Melissa Tadros and her team. However, finding myself scheduled to speak, I harboured the worries which might be expected of a fledgling PhD student: "Is my data worth presenting?", "Will others find my research interesting?", and "Am I weird by neuroscientific standards?"

This year, as is the case biannually, the Colloquium was held at Point Wolstoncroft Sport and Recreation Camp. This facility conjured memories of school camp and cabin-mates asking "are you still awake?" for hours; thankfully times have changed. After a restful night, my colleagues and I sat down to a communal breakfast on Saturday morning looking out at the autumnal beauty of Lake Macquarie.

We then enjoyed the first plenary lecture of the weekend, from Dr Suellen Walker of University College London on the plasticity of developing nociceptive pathways. Between breaks for food, coffee, relaxation and definitely not swimming (for fear of sea lice and bull sharks), regional students and ECRs treated us to presentations of their work. Highlights included talks from Lauren Poppi, on the role of acetylcholine in the vestibular system of aging mice, and Mark Gradwell on presynaptic inhibition in sensory circuits of the spinal cord. Mark and Lauren, both PhD students from the University of Newcastle, were to be awarded first and second prize, respectively, for the Best Student Talk.

My breaks were spent rehearsing. I was only dimly aware of a small fluorescent jellyfish discovered in the shallows of the lake by my cabin-mates. My talk passed in a blur and before I knew it the evening poster session was upon us. Drinking, nibbling, and increasingly enthusiastic discussion of neuroscience continued during a wholesome catered dinner. The pyromaniacal among us were the first to find the fire pit and disappoint our ancestors by resorting to matches. A fire and marshmallows, both alarming in size, were eventually produced.

On Sunday morning, Dr Rebecca Lim delivered the second and final plenary lecture of the Colloquium on the hair cells of mice, humans, and inner ear organoids. The Colloquium concluded with the presentations of the last students and ECRs, and the Best Student Talk award. I am glad I attended the Colloquium; it was stimulating, relaxing, and I won a bottle of wine for my talk on frequency tagging in the barrel cortex. I saw a different side to my colleagues, and discovered I am not stranger than usual among neuroscientists.

Guthrie Dyce

PhD Student,
ANU

Australian Course in Advanced Neuroscience (ACAN) 2018

ACAN 2018 was held on North Stradbroke Island, near Brisbane, on 8th - 28th April. Here, one of this year's ACAN students gives his impressions of the course.

Paul Mirabella

*PhD Student
Monash University*

ACAN is an exciting electrophysiology and optical imaging course offered to PhD students and postdoctoral researchers who seek training in these essential neuroscience techniques. The course was founded in 2005 by Australia's chief scientist, Alan Finkel, and is now formally under the auspices of ANS.

ACAN 2018 boasted an extraordinary line-up of local and international faculty, with prominent speakers including Prof Greg Stuart, Prof Angus Silver, Prof Maarten Kole, Dr Ede Rancz, A/Prof Ehsan Arabzadeh and A/Prof Jesper Sjöström. Lecture topics ranged from the basics of membrane physiology and neural coding to intrinsic neuronal plasticity and advanced calcium imaging techniques. An intimate group size of 12 selected applicants meant classes were an informal and interactive affair, often resulting in candid group discussions of the real "nitty gritty" of electrophysiology and neural signalling.

From day one, we were paired and allocated our own electrophysiology rig which (little did we know) was to become the few square metres of land on which we would spend the vast majority of our next three weeks. With moral support provided by our partner and individually assigned demonstrator, the sun rose,



ACAN Group in the lab.
[Second from right
Stephen Williams]

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*(Australian Course in Advanced
Neuroscience (ACAN) 2018
...continued)*

set and almost rose again while we passed our time forming gigaohm seals with cultured neurons until we could perform dual soma-dendritic recordings from layer 5 pyramidal neurons (a feat I never dreamed possible in my first week – “but dendrites are so small...?”).

The diversity of our cohort was truly valuable, with students and postdocs from universities in Australia, New Zealand and South Korea, amongst whom were young scientists from Hong Kong, India, Spain and the United States, as well as from Australia and NZ. By the end of week one we had become a family of sorts, uniting under the self-assigned slogan “two pipettes, one bath”.

Despite our incessant lamenting about having to present our data to the class, this turned out to be an integral part of our learning experience. In fact, on our final night we had the opportunity to present our mini-research project data, which was a testament to just how much we had achieved in three weeks. Projects ranged from an insightful comparison of the electrophysiology of adult versus newly-born hippocampal granule cells, to a truly impressive whole cell recording from the retina of a fly caught in the kitchen!

Suffice to say our three weeks of sleep deprivation could not prevent us from staying up until sunrise one last time to celebrate the completion of this highly rewarding course.

Each member of faculty played their role in not only facilitating our learning, but also making the time at ACAN truly unforgettable. Most of all, I think I can say on behalf of the 2018 cohort that the course could not have been such a success without the tireless commitment of the archetypal dynamic duo: course director Prof Stephen Williams and his always-helpful assistant, Lee Fletcher.

I would highly recommend this specialist course to any aspiring neuroscientist committed to learning the beautiful art that is electrophysiology from world-renowned “spike jockeys” who want to spread their love of the humble neuron.

Your Brain on Music

Music has an extraordinary, universal ability to make us smile, cry, remember, and tap our toes.

Emeritus Professor Alan Harvey is passionate about music, singing in numerous choirs and playing many concerts as a solo artist or as a member of various folk or rock bands. He has contributed to several recordings/CDs, and currently sings with the Perth Symphonic Chorus.

Alan's book “Music, Evolution, and the Harmony of Souls” was first published by Oxford University Press in 2017, and the book has just been re-released as a paperback. The book brings together Harvey's musical and neuroscientific interests, exploring the importance of music throughout human evolution, asking why we possess both language and music as universal communication systems, and emphasising music's continued relevance to society and human welfare in the twenty-first century.

Interest in this topic resulted in Alan being chosen to present a TedX talk at the Perth Concert Hall in November 2017:

<https://www.youtube.com/watch?v=MZFFwy5fwYI>

Alan was accompanied on stage by a string quartet made up of members from the Perth Symphony Orchestra, and by Mr Andrew Price, whose EEG traces were recorded live on stage as music was being played.

**Ann-Mare
Vallence**

*ANS Council Member
WA Representative*

July 2018

Call for Nominations to ANS Executive and Council



- The Student Representative position on Council will also become vacant. This position is filled by a nominee selected by the ANS Student Body.

Positions on the ANS Executive and Council will become vacant at the 2018 AGM, and nominations (including self-nominations) are now invited from the membership.

Details of these roles can be obtained from the Secretary. Should more than one nomination be received per position, a member vote will be held prior to the AGM.

The positions that will be available are the following:

If you are a current member and wish to nominate for any of the above positions, please email the ANS Secretary, Kay Double (kay.double@sydney.edu.au), with your name and contact details, stating the position for which you are nominating.

**Deadline for nominations:
COB Monday October 15th 2018.**

- Executive Treasurer
Current Treasurer Gary Egan has indicated he is willing to nominate for another term in this position.
- Executive Secretary
- New South Wales State Representative
- South Australia State Representative
- Tasmania State Representative
- New Zealand Representative
- Queensland State Representative
The Queensland and Victorian State Representative positions are currently filled by Ethan Scott and Tony Hannan, respectively, who were appointed to these positions by the Executive when the positions became vacant after the 2017 AGM. Both Ethan and Tony have indicated they will formally nominate for these positions but other Queensland and Victorian members may also like to consider a nomination for these positions.
- Victoria State Representative

ANS Newsletter Editor Position Open!

Interested in science communication?

Want to play a role in your Society?

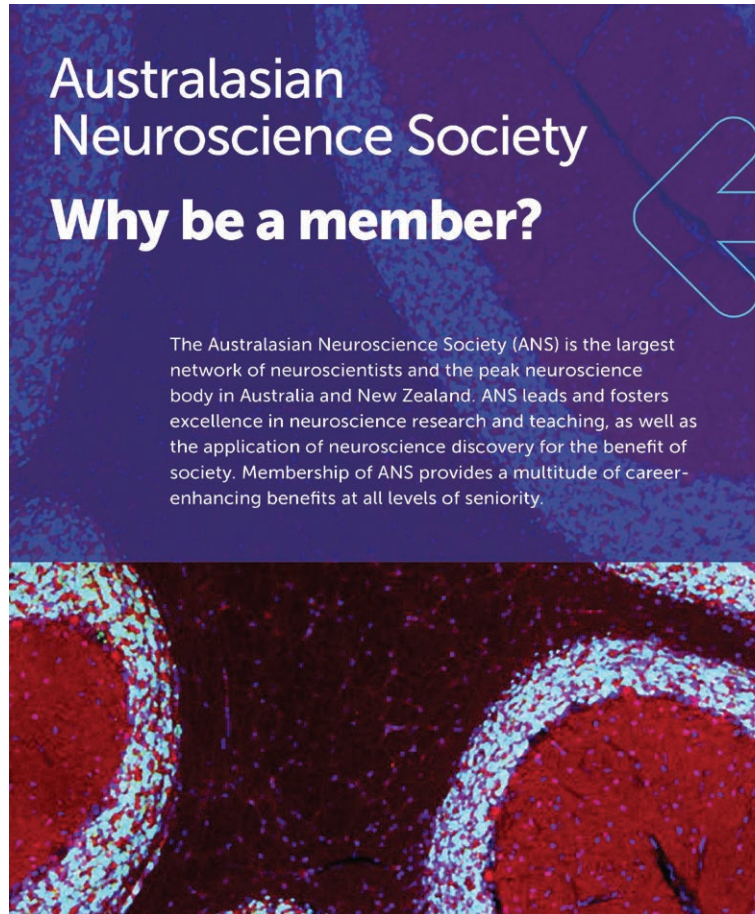
ANS Council is now calling for nominations for the role of ANS Newsletter Editor. The newsletter is a major source of communication with the membership and the Editor is responsible for writing, and commissioning from members, articles for the quarterly newsletters, with additional input from the Council. This is a great opportunity for a member, or a small group of early- and mid-career members, to play an active role in ANS and to develop skills in written communication.

Newsletter layout is completed by a professional graphic designer and approval of the newsletter is the responsibility of the Secretary.

Further details of this role can be obtained from the ANS Secretary or the current Newsletter Editor, John Bekkers. (Contact details are given on the back page of this newsletter.)

Nominations for this role should be forwarded to the ANS Secretary, Kay Double (kay.double@sydney.edu.au), by **COB Friday August 10th 2018.**

Become an ANS Member!

The image is a composite graphic. The top half has a dark blue background with a faint, glowing brain scan pattern. On the left, the text 'Australasian Neuroscience Society' is written in white, with 'Why be a member?' below it in a larger, bold white font. To the right of this text is a white outline of a hand with the index finger pointing left. Below the text is a paragraph of white text. The bottom half of the image shows a microscopic view of brain tissue, with red and blue staining highlighting specific structures.

**Australasian
Neuroscience Society**

Why be a member?

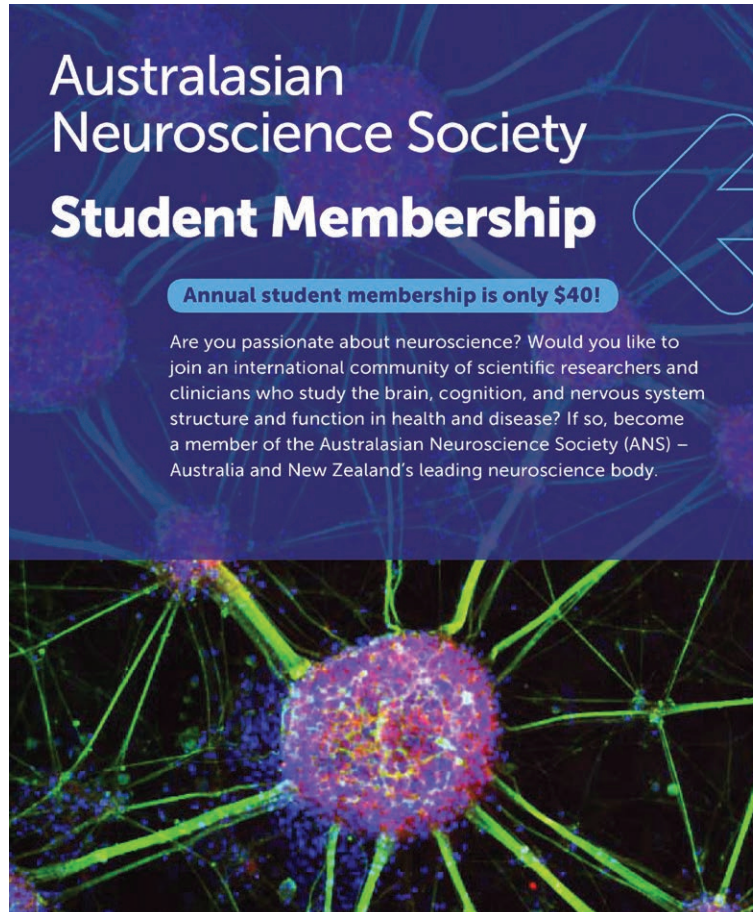
The Australasian Neuroscience Society (ANS) is the largest network of neuroscientists and the peak neuroscience body in Australia and New Zealand. ANS leads and fosters excellence in neuroscience research and teaching, as well as the application of neuroscience discovery for the benefit of society. Membership of ANS provides a multitude of career-enhancing benefits at all levels of seniority.

To become a member or find out more visit: www.ans.org.au

Benefits of ANS membership include:

- Enhance your career with education and networking opportunities
- Apply for ANS Research Awards available at all career levels
- Reduced registration rates to support your participation in the annual ANS conference
- Organise national conference symposia and nominate Plenary speakers
- Access State-based funding for local neuroscience events
- Global partner benefits including special registration rates at sister society conferences, such as FENS and SfN
- Be part of the Australian Brain Alliance, supporting neuroscience nationally and internationally
- Professional training opportunities locally and special access to courses offered internationally
- Participate in awareness activities in the public and political arenas
- Access resources and training for neuroscience teaching
- Support diversity in neuroscience
- Post and access free job and PhD position ads on our website
- Quarterly newsletter
- Career development opportunities for your research students

Become an ANS Student Member!

The advertisement features a dark blue background with a network of glowing green and purple lines, resembling a neural network or brain scan. The text is white and blue. A blue callout box highlights the membership fee.

**Australasian
Neuroscience Society
Student Membership**

Annual student membership is only \$40!

Are you passionate about neuroscience? Would you like to join an international community of scientific researchers and clinicians who study the brain, cognition, and nervous system structure and function in health and disease? If so, become a member of the Australasian Neuroscience Society (ANS) – Australia and New Zealand's leading neuroscience body.

To become a member or find out more visit: www.ans.org.au

Benefits of ANS membership for students include:

- Reduced registration fee for the annual ANS conference
- Travel awards to the annual ANS conference to all registered student members presenting an oral presentation or poster
- Awards for the best poster and oral presentations by student members at the ANS conference
- Mark Rowe Award for best publication by an early career researcher
- Discounted Federation of European Neuroscience Societies (FENS) membership and travel awards to FENS conferences
- Access to funding to support local student neuroscience events
- Enter the Images of Neuroscience photography competition
- Access to professional employment and student positions advertised within the members-only section of the website
- Access to ANS online community forums
- ANS website quarterly newsletter
- Opportunity to network with other neuroscientists across Australasia at regional student events and the annual conference

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We are always interested in receiving articles or information from ANS members for the Newsletter. Such material could include topics for discussion, meeting announcements, meeting reports, news about prizes and awards received by ANS members, obituaries, and any other items of potential interest to members of our Society.

The copy deadline for the next Newsletter is Monday 1 October 2018.

ANS Policy on Requests for Publicity via Email Circulation

The policy of ANS is to minimise email traffic to members. Advertisements for meetings and other significant announcements such as job vacancies can be added to the website and included in the newsletter if appropriate. Such requests should be directed to the ANS Secretary.

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