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The Australian Neuroscience Society 2022 Conference will be held at the Pullman Melbourne Albert Park, 5-7 December 2022

www.ans.org.au

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- Otago Division of Sciences, University of Otago
- University of Tasmania
- The Florey institute of Neuroscience and Mental Health
- The Eccles Institute of Neuroscience, The John Curtin
 School of Medical Research, Australian National University
- Centre for Neuroscience, Flinders University
- Centre of Excellence for Integrative Brain Function, ARC Centre of Excellence
- South Australian Health and Medical Research Institute
- Hopwood Centre for Neurobiology, South Australian Health and Medical Research Institute
- Queensland Brain Institute, The University of Queensland

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Message from the President

In this my final message, I've been reflecting on what we have missed and learnt over the past three years of the pandemic, which has aligned with my tenure as President-Elect and President of the Australasian Neuroscience Society. As we pivoted to meet the unexpected and constantly changing demands of the pandemic, the highlight for me will surely be the seeing you in person at this year's Conference at the Pullman Albert Park in Melbourne. Course Director Chris Reid and Co-Directors Karl Iremonger, Ian Forster Lucy Palmer and Jay Bertran-Gonzalez are all breathing a bit more easily now that ACAN 2022 has been successfully completed. A huge thank you for delivering such an amazing learning opportunity to the early and mid-career researchers in the neuroscience community.

Change at Neuroscience Research Australia



Prof Peter R Schofield AO

President, ANS <u>p.schofield@neura.edu.au</u>

Annual Scientific Meeting - Melbourne

In anticipation of our efforts to "Reconnect the Network²". I want to thank our conference coconvenors less Nithianantharaiah from the Florev and Zane Andrews from Monash and all the members of the Local Organising Committee for their amazing efforts to bring our second attempt at the Melbourne Conference together. I also want to acknowledge the enthusiasm and support that our Conference Executive Chair Tim Bredy has added to help enliven the meeting. After having to cancel the Perth 2020 and Melbourne 2021 meetings, we have an excellent program for Melbourne 2022. The LOC have added some changes in format that I hope will provide even more opportunities to engage with the presenters of cutting-edge neuroscience. In particular, I am looking forward to hearing about the research of the recipients of the A.W. Campbell Award and the Nina Kondelos Award and presenting the medallions to the recipients of the Paxinos-Watson Award and the Mark Rowe Award and especially to hearing our outstanding plenary presentations.

Annual Membership Update

The Society now has over 800 members. This is way more than our membership numbers in both 2018 and 2019, so it's clear that after the dip during the uncertainty of the pandemic, neuroscientists are keen to "reconnect the network". Without the income from membership fees and conference registrations, our finances have been constrained, but the Executive and Council are now looking forward to being able to support a host of new activities including reactivating the state chapters and facilitating more local interactions.

Australasian Course in Advanced Neuroscience – ACAN

A very successful return of the Australasian Course in Advanced Neuroscience (ACAN) occurred in October, with twelve students from across Australia and New Zealand attending the 2022 course at the Florey Institute of Neuroscience and Mental Health and the University of Melbourne. The logistics for delivering ACAN is huge and I am certain that the And finally, an update about some personal changes. After over 18 years of service as Chief Executive Officer and Executive Director of Neuroscience Research Australia (NeuRA), I will be stepping down from this role at the end of the year. I joined the institute, then known as the Prince of Wales Medical Research Institute, as CEO in 2004, succeeding Prof Ian McCloskey (also a former ANS President). The Board of Directors has been refreshed and our new organisational strategy with a sharper focus on neurodegeneration, mental health and ageing well approved. I will continue to hold an honorary appointment and pursue my research activities at the institute. The timing aligns with the conclusion of my tenure as President, although I will also continue to serve the Society as Past-President. Personally, I am looking forward to some new and interesting professional challenges, and hope to see you, wherever these new directions may take me.

Although possibly the most tumultuous three years in our recent history, I have greatly enjoyed my time as President and working with my fellow Council and Executive Committee members and especially being able to support all of our members.

Nina Kondelos Award

The Nina Kondelos Award is conferred on a female neuroscientist for outstanding contribution to basic or clinical neuroscience research. The Nina Kondelos Award was made possible by a donation to the Society by Professor George Paxinos, and it is named after his late sister.



Prof Clare Parish

Florey Institute of Neuroscience and Mental Health

Professor Clare Parish

I'm delighted and honoured to receive this year's Australasian Society for Neuroscience Nina Kondelos Award. The journey that has led me here has been equal parts rewarding, enjoyable and challenging. When asked to write a short piece to highlight what's led me to this point in my career and provide some insight and inspiration to the ECR community, I decided to focus on what I have considered some of the most influential areas – these include moving outside your comfort zone, knuckling down to the science and finally surrounding yourself with a great team.

After my PhD I took the plunge to do a postdoc overseas and in a new area of research. I spent 5 years in one of the first human pluripotent stem cell labs. It was a culture shock and for the first 6 months a challenge deciphering whether the discussions during lab meetings were in fact in Swedish or just a new 'foreign language of science' – a whirl wind of developmental and molecular biology! With a frequently traveling PI I also found myself in a crash course of independence and an environment in which I began to develop my own ideas – I look back on these years as pivotal in moulding me into the scientist I am today. For these reasons I say: grasp new opportunities and challenges – you will become a stronger individual and scientist as a result.

The second key piece of advice I give to my team members and external mentees is to focus and work hard at the science first and foremost. Without quality science and the associated outputs, contributions to extra-curricular science activities (committees, networks, conferences) are of little benefit to you and your CV. The science is what should be your greatest contribution and builds one's security in 'the game'. No doubt these other roles are important, and there is a need to contribute back to the sector and broader community, but this needs to be substantiated with quality science.

Finally, is about the people you work with. Build a team of people around you – fellow scientists you respect, share a similar work ethic and also vision. This importantly keeps it fun (and someone to share a drink with when the science fails or rejection letters arrive!) My career has not been without hiccups. I presently juggle work and a young family and have also had major health disruptions. I am privileged to be surrounded by an amazing team and colleagues who have helped, and continue to support me through this, ensuring the science is running and the balance is right. To all of them – thank you.



A.W. Campbell Award

The A.W. Campbell Award commemorates the eminent Australian Neurologist whose "Histological studies on the localisation of cerebral function" in 1905 founded cerebral cytoarchitectonics. It is awarded for the best contribution by a member of the Society during their first five postdoctoral years.



Dr Mehdi Adibi

Biomedicine Discovery Institute

Dr Mehdi Adibi

I have navigated through a meandering career path with a lot of ups and downs. When in the elite high school run by NODET, the National Organization for Development of Exceptional Talents, I was a physics and math chauvinist, until 1998 when I met a group of medical students in one of their extracurricular workshops. They had formed a small group devoted to the study of the brain with no teachers in the subject. That was the starting point of my passion for the brain and how it functions. I was accepted as the youngest member of the group and got involved in human psychophysics on motion perception. We divided the textbooks and papers among ourselves for efficiency, and each of us taught the others what we learnt from them in our weekly meeting.

After high school, as there was no university subject on neuroscience in Iran back then, I studied electrical and telecommunications engineering. At the same time, I pursued my research on visual system in the only experimental cognitive neuroscience laboratory in Tehran led by Hossein Esteky. The focus of the lab was on studying visual object recognition in primates. I travelled almost every week for 7 hours on a bus from my city, Isfahan, to Tehran. There, I learned electrophysiology in humans and nonhuman primates, and I published my first paper in 2005. Later, I moved to Tehran for my Masters studies, which made working in the laboratory much easier and more frequent. My background in mathematics and engineering placed me in a unique position compared to others mostly with medical background to better understand the mathematical language of the brain and computational bases of its function. While correcting my weaknesses in the physiology and anatomy of the brain, I focused on my strengths and how to use them effectively for more substantial effect on progression.

After graduating from the Masters programme in telecommunications engineering in 2008, I came to Australia to commence a doctoral programme

in neuroscience as the first doctoral student in a newly established laboratory in UNSW, under the supervision of Ehsan Arabzadeh. Using a combination of behavioural and electrophysiology approaches, I studied the neuronal basis of tactile vibration sensation in rodents. Thanks to the superb scientific skills training from Ehsan, I had a stellar outcome by the end of my PhD. A year before the end of my PhD, the whole laboratory moved to the John Curtin School of Medical Research, ANU. That was a significant setback in the progress of experiments. However, instead of viewing the negative side of it, I turned them to opportunities for positive change to learn and develop new techniques and skills.

Within a year after my graduation in 2016, I received an NHMRC CJ Martin Fellowship to continue my



(A.W. Campbell Award ... continued)

research in the International School of Advanced Studies (SISSA). Italy. This allowed me to rapidly develop my independent academic career with the award of a STARS Starting grant in a competitive scheme at the University of Padua, Italy in 2020. However, the commencement of my fellowship in February 2020 and the COVID lockdowns in Italy coincided. Thus, I decided to leave Italy, and to start my ARC DECRA fellowship in Monash University amid COVID lockdowns in Melbourne. This was the start of my independent career as a group leader/ lab head (Neurodigit laboratory) in the Biomedicine Discovery Institute (BDI), Department of Physiology, Monash University. My laboratory, Neurodigit, studies the neuronal basis of sensorimotor processing in dynamic and changing environments. The focus of my research is on the sense of touch and tactile perception, which is a new line of research in the Department. I apply a multi-level (cellular, circuit and cognitive levels) comparative approach on rodents and humans. I would say, the key to success and to developing a career in academia, in my case, has been the perspective, resilience, and never giving up.

It is almost time to Reconnect the Network²

In a couple of weeks we will be reconnecting inperson at the <u>2022 ANS Annual Scientific Meeting</u> in Melbourne! The LOC are putting on the finishing touches (read: frantically running around) to what will no doubt be the most memorable meeting ever! If the soaring registration numbers are anything to go by, we are on track. We are almost at venue capacity, so if you haven't yet registered, do it now!

This year's program looks amazing! http://www.ans.org.au/ans-2022-asm/program

With concentrated concurrent sessions and the addition of student/ECR data blitzes, it packs a punch. We are also going green! Besides the recycled-PET lanyards and plantable name badges, our program will be exclusively accessible online via the Whova conference app.

The LOC have also worked really hard at our social events designed to reconnect the Australasian Neuroscience community.

The Welcome Reception on the first night will have a wonderful live digeridoo performance. This will be followed by the Early Career Researcher Quiz Night organised by our amazing ECR LOC members, and promises trivial fun over three rounds (pun intended). Teams of ten will compete in the arenas of general knowledge, culture and music for a grand prize that will surely be the envy of all. Pizza and drinks will be supplied (first drink free) to fuel hungry brains.

Our second night will host the long-awaited Conference dinner, which is not to be missed.



Reflecting on the need to 'Reconnect the network²', we have decided on a funky causal dinner format with a delectable roaming menu that all can feast on, while being dazzled by the neuroscience-inspired light-show. We'll also be announcing the winner of the ANS Conference Image Competition – we had over 70 outstanding entries! Guests can mingle at funky high bar tables, relax at low benches or settle in for a discussion at larger 10-seater tables. But wait for it, you'll all have to be on the dance floor when the music kicks in from <u>Moreland City Soul Revue</u>.

The dinner will also showcase the wonderful ceramic artwork by the inclusive artist studio <u>Monte Lupo Arts</u> to bring you stunning table centrepieces (see image), which will be available for purchase on the night. ANS2022 is proud to partner and support Monte Lupo, which provides employment opportunities for people living with disability.

Ceramic artwork by the inclusive artist studio Monte Lupo Arts

November 2022

(It is almost time to reconnect the Network² ... continued)

Our second day of the conference will also showcase the next generation of neuroscientists at the National Brain Bee Final.

Finally, an important event not to be missed on the final day of the conference – the ANS Equity and Diversity Committee will host a panel to have a conversation around 'You Can't Ask Me That'. It will discuss what it is like for neuroscientists from marginalised communities in Australia/NZ towards improving equity, diversity and inclusion in our society.

The #ANS2022 LOC has invested enormous time and energy to see our national meeting succeed from both an academic and social community perspective. Please don't forget the immense value and necessity of supporting our national neuroscience. If you value it, you need to show it #StrongerTogether. Let's Reconnect the Network.

Looking forward to seeing you all there! On behalf of the LOC

> Jess Nithianantharajah and Zane Andrews

ANS2022 LOC Co-Chairs

Australian Course in Advanced Neuroscience (ACAN) 2022

The Australian Course in Advanced Neuroscience (ACAN) was held in person for the first time in three years. Melbourne hosted the course with students and Faculty staying at Graduate House, a short walk away from the laboratories.

This year the course had three distinct, but connected, themes. Week 1, headed by Karl Iremonger, focused on the fundamentals of electrophysiology. Imaging was the central theme of Week 2, headed by Lucy Palmer. While Jay Bertran-Gonzalez ran Week 3 covering systems and behavior. The students remained engaged until the last presentation of their data three weeks after the course began! A lot of credit needs to go to the students for the success of the course, as they really made for a dynamic and fun environment. As always Faculty contributed in spades; from giving fantastic talks to helping out in the labs. Without their support ACAN wouldn't happen, so thank you! Also, a big thank you to our sponsors that gave generously. Finally, we would like to acknowledge the support of the Florey Neuroscience and Mental Health Institute and the University of Melbourne for providing space and infrastructure to hold the course.

Christopher Reid

on behalf of the ACAN Directors



Impressions from a successful ACAN 2022









November 2022

'BrainTeaser' – Eccles Institute of Neuroscience at ANU – National Science Week

If the events of the last few years taught us anything, it's the importance of science outreach.

Noorya Ahmed Felix Thomas Rebekah Parkinson Rakshanya Sekar Nathan Reynolds Angela Nicoli

The BrainTeaser 2022 Organising Committee Enter Brainteaser 2022, the public outreach event held by the Eccles Institute of Neuroscience during National Science week. Organised by a handful of the Eccles' own PhD students, this was the first in-person event of its kind, following on from the 2021 instantiation, which was taken online due to last-minute lockdowns.

Brainteaser 2022 certainly was bigger and better, attracting around 300 members of the public for a day of interactive activities, entertaining and informative talks and lots of other brainy goodness.

Experts from ANU showcased some of the key concepts and techniques used in neuroscience research, from memory and auditory processing to patch-clamp electrophysiology and Optical Coherence Tomography (OCT) scans to visualise the retina. Visitors were able to walk through their neuroanatomy in a virtual-reality system, and measure their nerve conduction and reflexes. The talks covered a range of topics, including how our brains react to opera singing, deep brain stimulation, how exercise could save our vision, and developments in brain cancer research, among others. From all accounts it was a huge success, and those leaving feedback for the organisers noted that they had walked away with a greater appreciation of both the incredible supercomputer residing in their head and the ways in which we study it.

If you missed it, you haven't missed out entirely. Head over to the JCSMR Youtube channel for the recorded talks, and stay tuned for some more surprises next year at Brainteaser 2023.



A great public outreach event at the Eccles Institute of Neuroscience at ANU.

ANS Equity & Diversity Committee

We invite you to join an honest conversation about what it is like for Scientists from marginalised communities working in Australia/NZ as Neuroscientists. The ANS Equity & Diversity Committee has organised a panel designed around "You Can't Ask Me That" to open the door to new discussions that improve equity, diversity, and inclusion in our society. Hear from panellists who identify as LGBTQ+, linguistically diverse/ESL/POC, and living with a chronic pain disability, who will open up about their experiences in academia. This panel will kick start new activities from the E & D Committee to prioritise and highlight diversity and inclusion in ANS.

Please submit your questions by scanning the QR code, or following the link: <u>https://pollev.com/ans2022ed</u>

(All questions are anonymous and will be moderated).



YOU CAN'T ASK ME THAT

Asking ANS members who are from marginalised groups provocative, challenging, and startling questions



ANS 2022 Annual Scientific Meeting - Wednesday 7th December 11:30-12:00

ANS EMCR showcase

Dr Luke McAlary

Dr Luke McAlary is a neurodegenerative diseases researcher whose work focuses on protein misfolding and motor neurone disease (MND). He obtained his PhD from the University of Wollongong in Australia in 2017 and spent two years at the University of British Columbia Canada working on protein aggregation and liquid-liquid phase separation in MND. Since 2019, he has returned to Wollongong to pursue understanding the causes of MND and to determine methods to treat it. Currently, his work focuses on understanding the amyloid-state of MND-associated proteins and developing gene therapies to resolve these toxic protein conformations.

A common pathological hallmark of neurodegenerative disease is the deposition of some proteins into insoluble structures, called inclusions, within cells. A combination of microscopy and cell culture techniques is often used to determine if chemical or genetic alterations to cells can affect protein inclusion formation. A tricky part about this is the diversity of inclusion phenotypes within cells can make automated analysis of microscopy images extremely laborious and time consuming. Furthermore, the biologists who are performing these experiments are rarely experts in microscopy and image analysis, making the reported results sometimes unclear. My work, published in STAR Protocols (https://star-protocols.cell.com/protocols/2055) provides a step-by-step workflow for biologists who are not microscopy experts to image cultured cells and enumerate the percentages of cells that develop inclusions. The method makes use of open-source software, including a machine learning method to teach the software which cells contain inclusions. This methods paper should aid those who are not experts carry out more detailed analysis of their microscopy imaging experiments.



Dr Luke McAlary

Bill Gole Postdoctoral Fellow, University of Wollongong

Dr Karissa Barthelson

I have always been fascinated by the complexity of the human brain. I have witnessed first-hand the slow deterioration of Alzheimer's disease, and the devastation it has on the whole family. This has driven me to dedicate my career to developing treatments for dementia. My drive and passion for this cause was recognised and subsequently I was awarded the prestigious Race Against Dementia – Dementia Australia Research Foundation Postdoctoral Fellowship less than one year post-PhD.

I want to characterise shared disease-associated mechanisms between adult- and childhoodonset dementia. If I can understand these shared pathological processes, then I can design common therapeutic strategies. Ultimately, this could provide the potential to treat and improve outcomes of both dementia types simultaneously.

I am very driven by my end goal of making a difference to people's lives. If I could develop a treatment which could even slow cognitive decline, this would mean the world to the families and loved ones of people living with dementia.

As part of my postdoc fellowship, I formed a public advisory group of families of children living with Sanfilippo syndrome childhood dementia. This group is really important to me. I will be working closely with them throughout my research career, as they

(ANS EMCR showcase ... continued)

give me their feedback on my research and keep me on track so that my outcomes are always in their best interest. Involving consumers in medical research is one of the most challenging, yet rewarding parts of the job.

I love the challenges associated with medical research, as we are exposed to new ideas and perspectives, forcing us to see things differently. It gives me a lot of job satisfaction.

I'm currently testing some existing (and importantly, FDA-approved) drugs to see if they have therapeutic benefit in my zebrafish models of Alzheimer's disease and Sanfilippo syndrome childhood dementia. These drugs have their mechanism of action in the endo-lysosomal pathway (the part of the cell responsible for trafficking, degradation and recycling of molecules). If they show some benefit in the dementia-model fish, I will then be moving up to test them in mouse models.

I've recently won some awards for my PhD work characterising zebrafish models of early-onset Alzheimer's disease. I won the Harold Woolhouse Prize, the annual prize for the best thesis produced in the Faculty of Sciences at The University of Adelaide. I also won the D.G. Catcheside Prize, the annual award for the top doctoral student in the field of genetics from the Genetics Society of Australasia.

Do you have any advice for anyone considering a career in science? What advice would you give your 5-year younger self?

Sometimes it feels like everyone has it figured out except you. Speak to the other young researchers around you. Almost everyone has gone through or is going through similar struggles – whether it be imposter syndrome, or being nervous to ask how to use a piece of equipment – we all need to help each other out!

What do you do when you are not working?

I'm a big AFL fan and love the Adelaide Crows (even when they aren't doing so well!).

What are your future plans?

My next goal is to found my own zebrafish facility at Flinders University. This will be a big step for me in establishing an independent research career.



Dr Karissa Barthelson

Race Against Dementia – Dementia Australia Research Foundation Postdoctoral Fellow, Flinders University www.flinders.edu.au/people/karissa.barthelson twitter.com/kariisssaaa



Image of blood vasculature in a zebrafish forebrain (telencephalon), cleared with the CLARITY method. https://doi.org/10.1186/s13041-021-00734-5

Communications

Is there information you would like included in our ANS Newsletter, published in our monthly online Bulletin, posted on our website, or Facebook page, or tweeted?

ANS has a Communications Committee to help members disseminate information and assist the Society in publicising its activities to Members and the public. This committee is co-chaired by Dr Nathalie Dehorter (Australian National University) and Dr Marco Morsch (Macquarie University). It oversees the production of the newsletter and ensures that current content is posted on the ANS website, published in our monthly online Bulletin prepared by the ANS Secretariat, posted on the ANS Facebook page (curated by Dr Nathalie Dehorter) and disseminated through postings on the ANS Twitter account (by Dr Lila Landowski, University of Tasmania) and LinkedIn (curated by Prof Thomas Fath, Macquarie University).

- http://www.ans.org.au
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- in https://www.linkedin.com/groups/8362021/

If you have content for us, please email Marco Morsch (marco.morsch@mq.edu.au).

Become an ANS member or student member!

Please join with your colleagues in Australia and New Zealand by becoming a Member of ANS. You can join online at any time! <u>https://tas.currinda.com/register/organisation/172</u>



Policy

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 and monthly bulletin if appropriate. Such requests should be directed to the ANS Secretary.

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