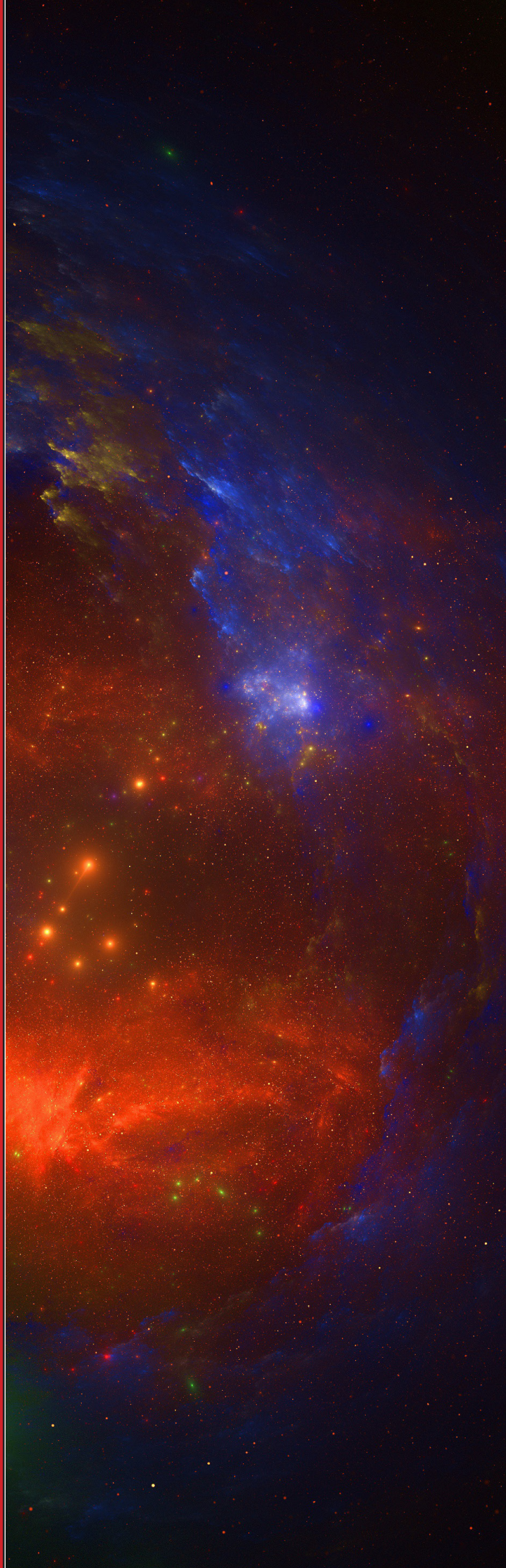




THE UNIVERSITY OF
SYDNEY

The University of Sydney Physics Foundation

Annual Report 2019



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The University of Sydney Physics Foundation

Annual Report 2019

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President's Report 2019



President's Report 2019

It is my privilege and pleasure to present the 2019 Annual Report for the University of Sydney's Physics Foundation. This has been a very exciting 12 months with many successful activities and initiatives. In July, we held the 40th Professor Harry Messel International Science School (ISS), with the title "Frontier Science". The ISS coincided with the 50th Anniversary of the first Moon Landing (20 July 1969) and the Opening Ceremony of the ISS was held at the Powerhouse Museum, with the Hon. Dr. Geoff Lee, NSW State Minister for Skills & Tertiary Education, making the Official Opening, and Dr. Matthew Abbott, NASA Flight Director, as the Keynote Speaker. This event was a spectacular success and in parallel, the Powerhouse Museum staged an Apollo II Exhibition to mark the Moon Landing Anniversary. We were also fortunate to have as one of the ISS lecturers, Dame Jocelyn Bell Burnell DBE FRS FRSE FRAS, a world-famous astrophysicist and an inspirational advocate for women scientists worldwide. The Gala Reception, held in the second week, was a great event, and we were very excited to have the new Governor of NSW, Her Excellency Margaret Beazley AC QC, presenting the medallions to the scholars. It is exceptionally pleasing that Her Excellency has agreed to be Patron of the Physics Foundation and the ISS. More details of ISS 2019 are presented later in this report. As ever, it is an ongoing challenge to continue to fund the ISS in line with the legacy of Professor Harry Messel and his fundamental goal of the pursuit of excellence in science.

The annual School of Physics Prize-giving Ceremony was held on 24 September in the Messel Theatre of the Sydney Nanoscience Hub. I was privileged to present the Foundation Scholarships, awarded to students for proficiency in the three years of Physics, to encourage their further studies in physics. It is very encouraging to see excellent achievement in so many talented science students, across all undergraduate years. The Foundation awarded fifteen scholarships in 2019, and while only 13% of these scholarship winners were female, there is an ongoing goal to reach the outcomes in gender equity and diversity space that the ISS continues to demonstrate.

The Foundation has been able to support the School in other ways in 2019. Support was provided to our Julius Sumner Miller Fellow, Dr Karl Kruszelnicki, to Dr Chris Stewart as ISS Program Director, and for the Harry Messel Fellowship program. This year the Messel Fellowship was restricted to female applicants and I am very pleased to report that Dr Wei-wei Zhang has been appointed. She joins the Quantum Physics research group. Other projects in 2019 include support for the Physics for Girls Workshop and the reconstruction of a representative version of the Narrabri Stellar Intensity Interferometer, which was funded by Harry Messel and the brainchild of Professor Robert Hanbury Brown. We gratefully acknowledge all donations to the Foundation and the Messel Endowment to enable such support to continue.

An exciting initiative from the Head of School was the Grand Challenges program, to be held over 5 years. Applications were invited from small collaborative groups within the School, with the criteria that projects be innovative, with preference given for ones that could attract external funding or that are unconventional and multi- or inter-disciplinary. Successful projects are to be funded at \$250,000 over a two-year period. There were 13 proposals, all of a very high standard, that were presented to the Selection Panel (including several Council members), making the choice difficult. For this first year, the two successful projects are titled: "Big data visualization of supply chains as a strategy to combat slavery" and "Mission to α -Centauri".

In 2018, we recorded with great sadness the passing of two of our most enthusiastic and generous

supporters. Emeritus Professor John Graham was a highly regarded astronomer, who is particularly known for his excellent work on photometric standard stars and observations of the radio galaxy Centaurus A, among other research papers. But, more importantly, he will be remembered as a kind, generous scientist with a great sense of humour and a broad and deep knowledge of astronomy. From the mid-eighties, John was an occasional and welcome visitor to Sydney University, and he was a generous donor on several occasions to the Physics Foundation and the ISS. We are greatly appreciative of his very generous bequest to the School that will be used to endow a Chair of Innovative Teaching in Physics. He will be sadly missed but long remembered.

Our other dear friend and supporter who passed away in late 2018 was Mr John Hooke CBE FTSE. He was a long-standing Council Member with a great passion and advocacy for science and nanotechnology and their benefits to society. John was an enthusiastic supporter of the School of Physics and the University of Sydney and his legacy will transform nanoscience in fields ranging from diagnostic medicine to computing to sustainable agriculture, through his funding of the John Hooke Chair of Nanoscience in the Sydney Nano Institute. It is with great pleasure that we welcome Professor Anita Ho-Baillie as the John Hooke Professor of Nanoscience. A more detailed report on her appointment is given later.

It has been a year since the Council welcomed Professor Celine Boehm as the new Head of School and Director of the Foundation. It has been a great pleasure working with Professor Boehm and we have made great progress with exciting new projects for the Foundation that are well aligned with our mission to promote excellence in science. We are also very appreciative of the support from Professor Iain Young as Executive Dean of Science and University Officer, and there has been excellent support and resourcing from the Faculty Staff with the ISS, particularly Megumi Kikuchi and Elizabeth Kenna. My thanks to all the Council members for their commitment to the Foundation over this past year, in particular to Mr Michael Winternitz in his role as Deputy President. Thank you to Ms Grace Schiavello, School Executive Officer, for her excellent administrative support throughout the year and we are appreciative of the assistance given by Ms Clara Spencer, School Manager, and Ms Stacey Nguyen, School Executive Assistant. It is with great anticipation that we look forward to another exciting year in achieving the pursuit of excellence.

Yours sincerely

Emeritus Professor Anne J. Green FTSE, FRSN, FAIP, FASA

President, Physics Foundation



VIPs at the Gala Reception

Physics Foundation objectives and aims



The University of Sydney Physics Foundation, established in 1954 by Emeritus Professor Harry Messel AC CBE, was the first Foundation established within the University of Sydney and the first of its kind within the British Commonwealth.

The Foundation was to support the School of Physics as a voluntary philanthropic association of individuals and private organisations dedicated to the pursuit of excellence in science education, research, training and communication. Today, the Foundation still carries out this important role.

Aims of Foundation

To support the School of Physics and to generate philanthropy, promote careers and broaden knowledge and understanding of science (in particular physics) in the wider community.

Objectives of the Foundation

To increase the resources of the University (by fundraising or by otherwise securing gifts and grants or by securing the provision of services or other non-financial contributions) to assist the Senate and the Vice-Chancellor in the promotion of the field of physics, through the School of Physics and To cooperate with the School of Physics, the Faculty of Science and the University in promoting the significance of science and developing an

understanding of its importance both within Australia and internationally.

Foundation activities in support of its objectives

- Raising funds from fees, donations, bequests and sponsorships.
- Building a strong financial position to ensure the Foundation can continue to meet its objectives in the long term.
- Providing additional funding to support the work of the School of Physics, through its scholarships, the purchase of equipment, and the underwriting of other initiatives.
- Promoting seminars, courses and workshops in the field of physics.
- Inspiring senior secondary school students through the Professor Harry Messel International Science School (ISS) to continue studies in science, and physics in particular, and to take up science careers.
- Any other initiatives and activities as the Foundation determines appropriate.

The Messel Endowment

The Physics Foundation established the Messel Endowment in 1999 to ensure the Professor Harry Messel International Science School (ISS) continues in perpetuity.

Currently there are over 200 supporters to the Messel Endowment. These generous supporters are acknowledged in the Messel Endowment Honour Board that is published on the Physics Foundation website.

The two largest donors to date have each donated over \$1 million. These donors are classed as Extra Galactic Donors and are:

- Australian Government through the then Department of Industry.
- Mr Lee Ming Tee, through Mulpha Australia.

Currently the Endowment holds \$5,982,105 in funds.

In 2019, donations and bequests to the Foundation totalled \$2450.

The Physics Foundation is appreciative of all our donors to the Messel Endowment. Without this valued support the ISS could not continue its important work of honouring excellence in outstanding Year 11 and 12 science students from Australia, China, India, Japan, New Zealand, Singapore, Thailand, the UK and the USA and encouraging them to pursue careers in science.

The Endowment seeks to accrue further funds through gifts, grants and bequests to ensure the ISS can be run in perpetuity with due allowance for inflation over the years.

Donations of \$2 and over are tax-deductible. Pledged gifts (donations spread over a three to five year period) are welcome and are also tax-deductible.

Careers and achievements

The ISS now has over 5000 alumni with many going on to outstanding career achievements in their chosen fields including science, medicine, engineering and technology.



Please help us in continuing to offer this world-class program to these talented students who come from diverse cultures and backgrounds.

Donations to the Messel Endowment can be made online, or via mail.

A donation to the Messel Endowment is an investment in the future of science.

For more information visit <https://sydney.edu.au/science/schools/school-of-physics/physics-foundation.html>

2019 Physics Foundation members

Foundation staff

Professor Celine Boehm Head, School Of Physics

Grace Schiavello - Executive Officer

Patron

His Excellency General David Hurley, AC DSC (until May 2019)

Her Excellency the Hon. Margaret Beazley AC QC

Past Presidents (initial year of presidency shown)

Dr Richard GC Parry-Okeden (1954)

Sir James N Kirby CBE (1957)

Sir Frank Packer KBE (1960)

Sir Noel Foley CBE (1963)

Sir Walter Leonard DFC (1966)

Sir Robert Norman (1969)

Mr James A Macpherson (1972)

Sir Walter Leonard DFC (1973)

Mr J Keith Campbell CBE (1975)

Mr Herman D Huyer AO OON (1978)

Mr Raymond J Kirby AO (1982)

Mr John R Slade (1986)

Mr Peter Douglas (1989)

Dr Peter Jones AM FTSE (1993)

Mr Paul Slade (1996)

Mr Graham Hall (1999)

Mr Pat Donovan AM RFD ED (2002)

Mrs Louise Davis AM (2005)

Mr Trevor Danos AM (2008)

Mr Jim O'Connor (2011)

Mr Albert Wong AM (2013)

Past Directors

(initial year of directorship shown)

Emeritus Professor Harry Messel AC CBE (1954)

Emeritus Professor Max Brennan AO FAA (1987)

Professor Lawrence Cram (1991)

Emeritus Professor Richard Collins FTSE (1997)

Professor Bernard Pailthorpe (2002)

Associate Professor Robert Hewitt (2003)

Emeritus Professor Anne Green FTSE (2006)

Professor Clive Baldock (2010)

Professor Tim Bedding (2012)

Foundation Council 2019

Office Bearers of the Foundation

Emeritus Professor Anne Green FTSE, President

Mr Michael Winternitz - Deputy President

University Officer

Professor Iain Young, Dean of Science

Council Members

Professor Dame Marie Bashir AD CVO

Dr Gregory Clark AC FTSE

Mr Trevor Danos AM

Professor Gemma Figtree FRACP FCSANZ FAHA

Mr James R Kirby

Professor Greg McRae

University Ex Officio Council Members

Ms Melinda Deerling

Ms Melissa Bonevska

Foundation Members

Founder

Emeritus Professor Harry Messel AC CBE

Life Governors

Mrs Louise Davis AM

Associate Professor Robert Hewitt

Dr David Mills AM

Mr Jim O'Connor

Mr Martin Rogers

Mr Paul Slade

Mr Albert Wong AM

Foundation Members...continued

Honorary Governors

Mr Tony Aveling

Emeritus Professor Max Brennan AO FAA

Emeritus Professor Richard Collins FTSE

Professor Lawrence Cram

Mr Raymond Kirby AO

Individual Members

Professor Dame Marie Bashir AD CVO

Dr Gregory Clark AC FTSE

Mr Trevor Danos AM

Professor Gemma Figtree FRACP FCSANZ FAHA

Emeritus Professor Anne Green FTSE

Mr James R Kirby

Professor Greg McRae

Mr Michael Winternitz

Corporate Members

The James N. Kirby Foundation

The Nell and Hermon Slade Trust

The Physics Grand challenges 2019

An initiative of the Head of School in 2019 was to open applications from the staff in the School of Physics for projects to be funded under a new scheme called the Physics Grand Challenges. The guidelines for the scheme require that the projects be innovative, with preference for those that could attract other funding sources such as from industry or potential donors. The projects were to be multi- or inter-disciplinary and to engage different groups within the School.

The funding for the winning projects is capped at a total of \$250k for a duration of up to two years. The successful project teams are required to submit a written report annually to the Physics Foundation at their Council meeting and to present a School Colloquium each year.

There were thirteen projects submitted for evaluation, all of high quality. Each team made a short presentation to the Selection Panel, comprising Council Members, some external highly qualified researchers from different Schools within the Faculty of Science and two people from the Faculty Administration.

After much discussion by the Panel, two projects were chosen for this first round. However, the Head of School will be in contact with five other projects to offer seed funding of \$10k to allow them to progress, especially towards preparation for future funding proposals (Discovery, LIEF, Linkage, Development & Ideas Grants).

The two successful projects selected for 2019 are “Big data visualization of supply chains as a strategy to combat slavery”, led by Dr Joy Murray and “Mission to α -Centauri”, led by Professor Martijn De Sterk. For these two projects, there are obvious synergies with some of the others. Also, external funding may already be identified.

The five projects offered seed funding are:
Neuro-photonic platform (A/Professor Stefano Palomba)

The Glass Innovation Laboratory (Professor David McKenzie)

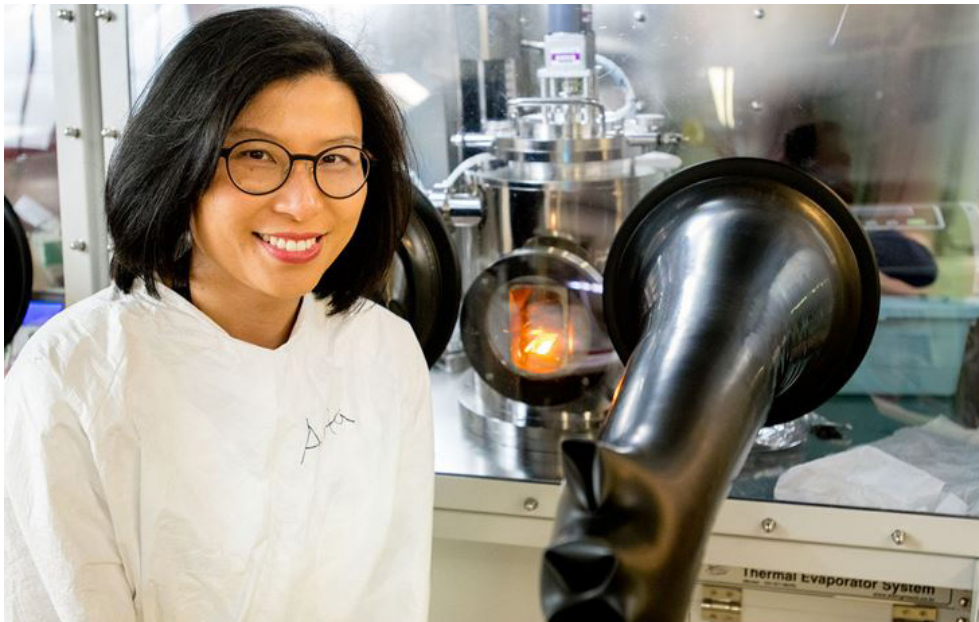
Increasing the Impact of Science on Society (Dr Tristram Alexander)

Natural and artificial intelligence (A/Professor Pulin Gong)

Navigating the brain spatial gradients (Drs Shelley Wickham & Ben Fulcher)



The John Hooke Chair of Nanoscience: Professor Anita Ho-Baillie



Professor Anita Ho-Baillie

In November 2019, it was announced that Anita Ho-Baillie had been appointed to the inaugural John Hooke Chair of Nanoscience. Her vision in this position is to harness the enabling properties of new and emerging materials for low-cost, high performance clean energy devices at the nanoscale.

Professor Ho-Baillie is an engineering graduate from the University of NSW, who then went on to work at numerous innovative industries such as British Aerospace, Alcatel Australia, Pacific Solar and Solar Sailor. She has been identified as one of the leaders in advancing perovskite solar cells and building integrated photovoltaic devices to achieve world records in solar cell efficiency. For 2019, she has been named a Web of Science Highly Cited Researcher. Anita has an exceptional track record in cited publications and competitive grant success.

Her research interests include the design, fabrication and characterization of solar cell materials, with applications in space and on the ground. She also researches optoelectronic devices, made of hybrid and composite materials.

The late Mr John Hooke made a generous philanthropic donation to support nanoscience at the University of Sydney and the John Hooke Chair of Nanoscience was established to honour his name and work. He was a passionate supporter of science and how it might benefit society.

The Foundation congratulates Professor Ho-Baillie on her appointment and looks forward to exciting results from her work.



ISS2019: Frontier Science

The Foundation and the School of Physics reached a new milestone in 2019, hosting the 40th Professor Harry Messel International Science School, ISS2019: Frontier Science.

The ISS ran from 7 to 20 July 2019, with a focus on exciting, inspiring and transformational research and technology. This ISS program also coincided with the 50th anniversary of the Apollo 11 moon landing — a reminder also of the ISS's origins in the 1960s, when many early Science Schools focussed on the space race.

The theme of Frontier Science brought together topics across the diversity of science, from space exploration to quantum computing, from genomics to climate change, from machine learning to astrophysics.

126 senior secondary school science students attended ISS2019, representing every state and territory in Australia and seven overseas countries. They were treated to a unique lecture series by leading researchers, participated in hands-on activities in disciplines across science and engineering, and enjoyed a host of social events.

Feedback from the ISS scholars shows that, for many of them, their time at the ISS is transformational. Their messages of thanks attest to the truth in the traditional words of welcome to the International Science School:

“The ISS will be the best two weeks of your lives.”

The ISS2019 Scholars

Chosen by our selection panels across Australia, students attended the ISS from every state and territory of Australia: Australian Capital Territory (2), New South Wales (43), Northern Territory (5),

Queensland (9), South Australia (4), Tasmania (3), Victoria (7) and Western Australia (6). International scholars came from China (10), India (5), Japan (9), New Zealand (6), Thailand (7), the United Kingdom (5) and the United States of America (5).

Liftoff! ISS Launch at MAAS

The overlap of the 40th ISS with the 50th anniversary of the Apollo 11 mission provided an ideal opportunity for a high-profile opening event. The ISS partnered with the Museum of Applied Arts and Science (MAAS) in Sydney to host the official ISS2019 launch at their newly-opened Apollo 11 exhibition, which featured several artefacts from the School of Physics and Physics Foundation, from the early days of the ISS program during the Apollo era. The event featured guest speakers formally opening the program in the morning, followed by a series of museum-run activities for the students in the afternoon.

Many friends and supporters of the ISS joined the scholars at MAAS for the opening ceremony. The program was formally launched by The Hon Dr Geoff Lee, NSW Minister for Skills and Tertiary Education. University of Sydney Vice Chancellor Dr Michael Spence thanked the Minister, and encouraged the scholars to make the most of the ISS and to grasp the opportunity to stretch their social and scientific horizons. We also warmly welcomed Consuls General and senior officials from the consulates of China, Japan, Thailand, India and the USA, who met with the teams of scholars representing their countries at ISS2019.

After the formal proceedings, the ISS program kicked off with the opening lecture by our very special guest speaker, NASA flight director Matt



Group shot of the ISS2019 Scholars and Academics

Abbott. Drawing on decades of experience at Flight Control, Matt took the scholars and attendees on a journey of human space exploration, from the earliest rocket flights, through the Apollo program to the moon, to the Space Shuttle era and the International Space Station, and then to the future of the planned Lunar Gateway and Mars missions in the coming decades.

The ISS2019 Program

The ISS lecturers are selected for their area of expertise, scientific reputation and communication prowess. The ISS2019 series featured our international guests Matt Abbott, NASA flight director, and Dame Professor Jocelyn Bell Burnell DBE FRS, discoverer of pulsars and iconic leader in astrophysics research. The full lecture series comprised:

- Matt Abbott (NASA) — The Past, Present and Future of Space Exploration; and Directing Operations for the International Space Station
- A/Prof. Shelley Wickham (Sydney) — Nanorobots and DNA Origami; and On the Physics Nobel Prize 2018
- Prof. Jocelyn Bell Burnell (Oxford) — We Are Made of Star Stuff; and Weird And Wonderful Wave Phenomena
- Prof. David Reilly (Sydney) — Scaling up Quantum Computers; and The Convergence of Qubit Platforms
- Prof. Kathryn North (Melbourne and MCRI) — Genomics & Precision Medicine; and A Gene for Speed?
- A/Prof. Martin White (Adelaide) — Particle Astrophysics at the large Hadron Collider
- A/Prof. Alex Sen Gupta (UNSW) — Anthropogenic Climate Change; and Modelling a Changing Climate
- Dr Denis Bauer (CSIRO) — Unlocking the Secrets in your DNA with Machine Learning

and the ever-popular

- Dr Karl Kruszelnicki (Sydney) — Great Moments in Science

Outside the lecture theatre, the students toured research facilities across the university, met early-career scientists at a lightning meet-and-greet event, competed for glory in the Science & Engineering Challenge, received five decades of wisdom and encouragement from our ISS Alumni Panel, and took part in workshops designed to challenge and expand their understanding of ethics and scientific leadership.

Our good friends in the Sydney branch of the Young Scientists of Australia entertained the scholars with a rich program of social events throughout the fortnight, from trivia competitions to movie nights. The



ISS19 lab tours

long association between the ISS and the YSA is widely recognised and celebrated, and we look forward working with them for years to come!

The traditional ISS Gala reception was held on Thursday 18 July in the Great Hall. This event is an opportunity for alumni, donors, friends and university staff to meet the scholars first hand, to celebrate the long history, and toast the future of the program. The NSW Governor, Her Excellency the Honourable Margaret Beazley AC QC, attended for the first time in her capacity as Governor and ISS patron — she spent several hours mingling with the students and guests, and we thoroughly enjoyed welcoming her to the ISS community. We were also honoured to receive NSW Senator Hollie Hughes, attending and speaking on behalf of the Federal Minister for Education the Hon Dan Tehan.

MC for the evening was Adam Spencer, radio and TV presenter, Sleek Geek, and science ambassador for the University of Sydney, who kept more than 400 guests entertained throughout and ensured the event ran smoothly.

The ISS Book and Video Series

We have produced a book to accompany every International Science School. In recent years, this has contained interviews with the scientists discussing their work, influences and experiences, and thoughts on the future of their disciplines. All participants received the book on arrival, and copies were presented to each lecturer also. The ISS2019 book is available in PDF and e-book formats from the ISS website: sydney.edu.au/science/iss

Since 2005 we have recorded the ISS lectures and made them available on the web. The entire 2019 lecture series is available on our YouTube channel at: youtube.com/TheSydneyISS

“Amazing that this is free!”

— comment from YouTube viewer

ISS2019: Frontier Science Cont.



ISS2019 Frontier Science book cover

A Very Fond Farewell

With all the celebrations as ISS2019 came to a close, we also commemorated — with some sadness and a lot of very happy memories — the end of an era: ISS2019 was the final program for our wonderful House parents, Karen Palmer and John Bright.

John and Karen have attended every ISS since 2005, offering on-call pastoral care and support for all scholars (as well as staff, and often the Project Officer and Director!) for the entire two weeks of the program, and beyond.

As House Parents, Karen and John have contributed so much — not just to the welfare of the scholars, but also to the evolution of the program's ethos, through nurturing the community of volunteer staffies, providing experience and wisdom to the organisers, and strengthening the wider network of alumni, friends and supporters. It's impossible to thank them sufficiently for their work, their commitment, and their friendship — regardless, thank you Karen, and thank you John. You are always welcome back as ISS Friends for Life!

Huge Thank you To All Our Supporters

The ISS could not run without the generous support of our financial and logistical supporters.

We receive considerable funding from the NSW Department of Education, and we are grateful for their support over many years. We also thank the many donors to the Messel Endowment, set up by the Physics Foundation with the aim to fund the ISS in perpetuity — in particular, the Australian Government through the Department of Industry, Innovation & Science, and Mulpha Australia.

The NSW Department of Education also assists with the selection of the NSW scholars, as do the Science Teachers Associations in every state and territory. The overseas student selections are coordinated by partner organisations in each country, who also contribute scholars' airfares to Sydney. Each of these groups is invaluable to the success of the ISS.

The local team behind the program is larger, and works harder, than the scholars ever imagine. We are indebted to all who made the program run smoothly, particularly: the Faculty of Science Engagement & Outreach team; the Science Communicators across the Schools and research groups of the University; and the staff of the School of Physics and members of the Physics Foundation.

Extra special thanks must go to ISS Project Officer Meg Kikuchi, who managed her first ISS program with unflappable professionalism and level-headed grace. Thank you, Meg — you gave so much to make the program a success, and the quality of ISS2019 was, to a large degree, a result of your efforts.

[Student Quote]

"ISS is such an amazing experience — it is truly life changing and is the greatest experience a young person with a passion for science could have."



ISS2019 Staffies

Physics for Girls Workshop 2019

The School of Physics hosted two Girls in Physics workshop in 2019. Both events were well attended and following requests from some of the teachers we are considering how we can embed up to 3 workshops into the School's calendar. This would give schools the flexibility to fit the event into their school calendars, and the Physics team firm dates and time to plan. We are also thinking about tailoring one workshop to Year 10 students who have yet to decide if they will be doing Physics in Years 11 and 12.

Workshop 1 was held on 19 August 2019 in collaboration with the Sydney Nanoscience Hub. Lunch was generously provided by the Physics Foundation for the 78 students and 11 teachers. The students, Year11/Year12 girls, interacted with postgraduate students and academics and were introduced to the wide variety of interesting careers that are open to Physics graduates. Students came from a mix of public and private schools, from Metropolitan Sydney and regional areas, as shown in the table below.

Name of School	Number of students
Gosford High School, Gosford	6
Kellyville High School, Kellyville	1
Liverpool Girls High, Liverpool	5
MacArthur Girls High School, Parramatta	11
Macquarie Fields High School, Western Sydney	6
St Ives High School, St Ives	6
Kincoppal – Rose Bay, School of the Sacred Heart, Rose Bay	8
The Hills Grammar School, Kenthurst	10
Our Lady of the Sacred Heart College, Kensington	16
Wyndham College (Senior High School), Quakers Hill	4
Chevalier College, Burradoo	4
Bishop Druitt College, Coffs Harbour	1
TOTAL	78

During the morning session, the students attended presentations by three female researchers (Arunima Malik – Sustainability, Hilary Byrne – Medical Physics and Shelley Wickham – Nanostructures), participated in hands-on activities (measured the speed of light and speed of sound) and watched



demos of cool Physics experiments. After the delicious lunch, students and teachers had the opportunity to hear from Stefano Palomba, a leading researcher in the area of Nanophotonics and Nanoplasmonic technologies. Stefano gave a brief overview of the exciting, cutting edge, multidisciplinary research that is done at the Sydney Nanoscience Hub. In our final session, students and teachers participated in a Q&A session with a panel of students and academics, where they had the opportunity to ask questions about what it's like to study Physics at The University of Sydney and the myriad of career pathways they can pursue after graduating with a major in Physics.

Workshop 2 was held on 6 December 2019 at the Powerhouse Museum (PHM) and the School of Physics, in collaboration with the Museum of Applied Arts and Sciences (MAAS). The morning session was held at the PHM. The students, Year10/Year11 girls, came from a mix of public and private schools, from Metropolitan Sydney, as shown in the table below. The smaller numbers reflect the fact that for many private sector schools this was the last of term.

Name of School	Number of students
Arthur Phillip High School	3
Cranebrook High School	5
Killara High School	3
Northern Beaches Freshwater Senior Campus	2
The Jannali High School	7
Clancy Catholic College	6
Mount Carmel Catholic College	3
TOTAL	29

Physics for Girls Workshop 2019 Cont.

The students had the opportunity to hear from an all-female panel of experts, to find out about their careers and to ask them questions about anything! They then explored the Apollo 11 exhibition and heard about the role women played in that mission and how a future career in the 'space' sector is possible in Australia. They used python coding to determine the spectra of stars and took in some solar viewing in the museum courtyard. Students and teachers were transported to the School of Physics for lunch, once again generously provided by the Physics Foundation. After lunch there was time for hands on activities and cool demos in the new first year Physics laboratories. The final activity was a Q&A session with an expert panel of postgraduate students and academics informing the students about career pathways they can pursue after graduating with a degree in Physics. The feedback from both students and teachers, for both workshops, was very positive. This is what the students said they would tell others about the workshop:

Interesting, enjoyable, physics has many branches.

Really helpful, helps clear doubts.

Interactive and informative.

Gives a great insight into what it's like in the day of the life of a physicist.

It's great! I was made aware of how fun science in general can be, especially when applied to the real world.

In response to the question 'What did you find most useful?' the students said:

The presentations throughout the day were useful in exposing interesting areas in physics that aren't really discussed!

The Q&A session.

Learning about the different opportunities that doing physics or science at university can lead to.



Students at the Physics for Girls Workshop

The Anne Green Portrait

The Foundation commissioned a portrait of Emeritus Professor Anne Green, first female Head of the School of Physics and first female Director of the Physics Foundation. She was also the first female PhD student in the School of Physics, during the period when Professor Harry Messel was the Head of School. As the current President of the Foundation, she has expressed deep appreciation for this acknowledgement of the contributions made to the School and the Physics Foundation, and as a role model for young women in science.

“It is a great honour to have my portrait hung in the same room as Harry Messel”, Professor Green said, having been inspired to study science after viewing his televised Summer Science School programs, an initiative Messel began while Head of School.

The artist chosen to paint the portrait in 2018 was

Yvette Coppersmith, an acclaimed young artist resident in Melbourne. She had been a finalist in several significant art competitions, including the Portia Geach Memorial Award and the Doug Moran National Portrait Prize. In 2018, she was awarded the pre-eminent Archibald Prize for her self-portrait. This was an exciting development but delayed the completion of the portrait by a few weeks due to Yvette’s publicity commitments following the award. There were two live sittings for the portrait and many discussions with the artist. The unveiling of Anne’s portrait was held at a ceremony on 15 April 2019 and the painting is now hanging in the Foundation Room. It is interesting to note that the portrait of Harry Messel that is also hanging in the Foundation Room was painted in 1972 by Louis Kahan, who was the Archibald Prize winner in 1962.



Yvette Coppersmith and Emeritus Professor Anne Green

Dr Karl Kruszelnicki AM | Julius Sumner Miller Fellow

The Science Foundation established the position of Julius Sumner Miller Fellow within the School of Physics in 1995. Science author, media personality and broadcaster Dr Karl Kruszelnicki has embraced the position of Fellow since its inception. This has been another wonderful year of achievement, focus, and visionary thinking, culminating in global recognition of Dr Karl's extraordinary output over decades of work.

Staff

Isabelle Benton continued working alongside Dr Karl as his producer and Chris Norris as technical producer for the University of Sydney podcast 'Shirtloads of Science'.

University of Sydney Events

Student-driven events included Dr Karl presentations for The Breakfast Club, The Bioengineering Innovation Challenge, and Sydney Union's Popfest event. University-driven events included the Sydney Science Experience, a lecture for the School of Physics Early Career Researchers Group, and a Leadership in STEMM seminar for students in the University's high-achievers Dalyell stream.

Other events included Year 10 Information Evenings, Open Day, Camden Open Day, Scholarships Information Evening, and International Science School presentations.

Dr Karl gave a Sydney Science Forum Public Lecture at the Seymour Centre and a talk for The Faculty of Science Halloween event 'Choose Your Own Apocalypse'.

National Science Week

During National Science Week Dr Karl spoke to an estimated audience of over 6,000 people from schools, in convention centres and across digital networks.

Dr Karl kicked off Science Week with his annual talks to primary and high school students at the Australian Museum, sponsored by the University.

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In Adelaide Dr Karl gave talks at Norwood Morialta High School, the Adelaide Convention Centre, the SA Museum and a Royal Institution Australia 'In Class Series' Q&A with high school students, their parents and digital networks. Dr Karl's answer to a student's question, 'Do you believe in climate change?' generated much publicity and has been shared thousands

of times across social media. It's not about believing in climate change, responded Dr Karl, but accepting the facts.

Back in Sydney Dr Karl headed out west to Penrith High School to give two shows: 'Great Moment in Careers' with the students and the premiere of 'The Colour of an Electron', a show co-created with University of Sydney's astrophysicist Professor Geraint Lewis. 'The Colour of an Electron' was also performed at Smith's Hill High School in Wollongong, University of Wollongong and Giant Dwarf in Newtown.

Dr Karl presented a fascinating talk about the birth of the elements for the University of Sydney's flagship event, 'The Al-Zr of the Periodic Table' to celebrate its 150th birthday.

In amongst this bustle of Science Week activity, Dr Karl did four school Science Q&A Sessions. The collaboration between colleagues, universities, disciplines, states, schools, museums and digital networks to reach audiences of all ages across numerous platforms ensured that Science Week had maximum impact in educational industries and the community.

## School Activities

Science Q&A (via Skype)

Dr Karl's first Science Q&A of the year was with Pathways World School in India. Dr Karl did 60 school Science Q&As throughout the year including distance education schools and schools in the UK. Every government school receives a box of Dr Karl's personally signed books for their library with a University of Sydney bookplate. A number of school skypes were organised in collaboration with University of Sydney's Corey Tutt, founder of Deadly Science (and NSW Young Australian of the Year no less).

School Visits

Jilkminggan School travelled from the Northern Territory to University of Sydney and enjoyed a Dr Karl presentation and Q&A session. Dr Karl has continued to visit schools outside of the University where possible. These included Northern Beaches Secondary College and Aurora College, a virtual selective college for students in rural and remote areas. Dr Karl travelled to Christmas Island to give talks to Christmas Island District High School and the general public.

Sleek Geeks Eureka Schools Prize



The amazing Dr Karl sent us a pile of personally inscribed and signed books from his collection following our year 6 Skype session. These books will be available for our seniors to trawl through before they are added to the library for all to read.



The University of Sydney Sleek Geeks Eureka Schools Prize is now into its fourteenth year. Films about air conditioners damaging habitats of polar bears, bringing the dinosaurs back, and investigating how microplastics end up in the ocean were among the shortlist winners. The finalists in all categories spent a very special day at University of Sydney with Dr Karl and Adam Spencer, ahead of attending the Eureka Awards Dinner where the winners were announced.

## Television

Dr Karl continued with his regular appearances on Channel 9's Today Extra, talking about science related stories in the news. Other commercial TV appearances included Sunrise and The Project. A TV highlight was Dr Karl appearing on SBS' Who Do You Think You Are? reaching a record breaking 800K views! Throughout the year Dr Karl was sought after by international TV crews for comment about science related stories in the news. Yomiuri Television from Osaka Japan and BBC World TV both interviewed Dr Karl.

## Radio

Dr Karl continued his national ABC radio segments adding ABC Brisbane and ABC Sunshine Coast bringing the overall weekly on-air hours to six. The Triple J audience in just the five capital cities alone currently attracts over 750,000 listeners, while the podcast downloads are over 4 million for the year. These regular radio segments provide an opportunity to invite University of Sydney academics to join Dr Karl on air for invaluable publicity about their work at the University. Karl's regular weekly science

talkback program on BBC Five Live program 'Up All Night' is transmitted across the UK (and the world, live, via the web) on Thursday mornings to a growing audience of around 1.5 million people.

## Interwebs

Dr Karl is an avid user of social media and provides a constant source of information and dialogue on all things scientific. His followers continue to grow with Facebook rising from 48K to 55K. Instagram followers are up by an astounding number, from 40K to 85.5K. Twitter followers are up from 307K to 321K. Dr Karl uses all his platforms to retweet and promote the academics, research, news and public events at University of Sydney.

His website, drkarl.com includes University events, all four podcasts, radio schedule, science writing and the booking system for School Skypes. This year the website was integral for implementing the Augmented Reality contained in his new book.

Dr Karl's ABC Webpage is currently responsible for almost one-half of all visits to the ABC Science webpage, and about 5% of all Internet traffic to the ABC.

## Further media highlights

The Museum of Australian Democracy featured the work and wardrobe of Dr Karl in their 'DressUP: Change the World' Exhibition in Canberra. Australian musician Jack River invited Dr Karl to be a panellist on her 'Climate Hour' event preceding one of her concerts.

## International Award for Science Communication

In late November, The United Nations awarded Dr Karl the UNESCO Kalinga Prize for the Popularisation of Science at the World Science Forum in Budapest, Hungary. Following in the footsteps of David Suzuki, Arthur C. Clarke and David Attenborough, the prize is global recognition of Dr Karl's gift for communication and his 'outstanding efforts in translating scientific research into educational and entertaining stories ... through a variety of media for generations to come.' Dr Karl is the first Australian to win the prize: an incredible achievement.

## Podcasts

Dr Karl still has four podcasts. The weekly University of Sydney podcast 'Shirtloads of Science' (average download per episode is 10K) launched in late 2016 and is building an incredible list of guests talking science with Dr Karl. University of Sydney guests signify a collaborative working relationship between Schools and Disciplines within the University and publicise the fascinating and varied research being undertaken.



## Dr Karl Kruszelnicki AM | Julius Sumner Miller Fellow Cont.



Dr Karl receives UNESCO Kalinga Prize

### Books & Other Writing

Book number 45 was released in October. 'Dr Karl's Random Road Trip Through Science' is in full colour, with a larger format and bonus Augmented Reality! Dr Karl continued his regular column in Australian Geographic magazine. National Geographic Kids magazine (Aussie edition) featured a fascinating double page spread on Dr Karl after his Kalinga Prize win. Throughout the year Dr Karl contributed stories to the Sydney University Science Alliance newsletter (4000 members) and Physics News.

### Mentoring and Media/Speaker Training

Participants from Famelab joined Dr Karl at ABC radio and the University for some school skype Q&A sessions and a talk. Dr Karl met with the Top 5 under 40, the Science program for early career university researchers designed to nurture communication skills and media awareness. Dr Karl recorded a 'Shirtloads of Science' podcast with Corey Tutt in front of a live audience at the University's Matilda Centre. It was a wonderful collaborative event between University of Sydney Schools.

### Festivals

Karl was a guest at the World Science Festival in Brisbane and Townsville, Scribblers Writers' Festival in Perth, Splendour in the Grass Festival, Canberra Writers' Festival and Woodford Music Festival.

### Overseas Activities

In February Dr Karl headed off to Antarctica as a guest of the Australian Antarctic Media Program. Here he interviewed scientists for his University of Sydney podcast and completed the world's first ever talkback radio from Antarctica, with a little help from guest Antarctic scientists. October brought Dr Karl and Professor Geraint Lewis to the UK for the international premiere of 'The Colour of An Electron' at the Royal Institution in London. Dr Karl also gave presentations at New Scientist Live, Nature and The Cosmic Shambles Network.

### Into Tomorrow

The year 2019 was Dr Karl's 25th year as Julius Sumner Miller Fellow. Advocating for accessible science is what Dr Karl does best, his transformative voice has impacted across the globe this year, exemplified by his UNESCO Kalinga Prize.

Guardian Australia approached Dr Karl towards the end of 2019, requesting an article about his vision for the new decade. 'We need honourable people with a big picture plan' was part of Dr Karl's vision. The Julius Sumner Miller Fellowship has supported Dr Karl to be his vision during his time as Fellow, and 2020 will bring more of that same dedication to public good via the rigorous pathway of science.



# Foundation Governance Statement

University Foundations are required to report to Senate. Summarised below is the Governance Statement Section to be reported upon as part of the Annual Report. The Annual Report prepared by a Foundation is to be submitted via the Chief Accountant to Finance and Audit Committee of the Senate.

The University of Sydney Physics Foundation recognises the importance and benefit of reviewing its adoption and alignment with governance principles and provides the following report

## **Principle 1 – Lay solid foundations for management and oversight**

### **Nature of the entity**

The Physics Foundation is a part of the University of Sydney ABN 15211513464 and not separately incorporated under a state or commonwealth Act. The Foundation is required to gain prior approval for its fundraising activities from the appropriate University delegate. The Foundation's activities are not-for-profit and covered by the DGR status of the University of Sydney. The University is exempted from the requirement to hold an Authority to Fundraise and obligations upon holders of such an authority but is still required to comply with the balance of provisions of the Charitable Fundraising Act.

### **Roles of board / council and management**

The Foundation operates under the authority of the Senate of the University of Sydney, as approved in 1954 and has no powers of delegation. The Foundation conducts its affairs pursuant to the Foundation Rules and the relevant policies of the University. The Foundation had its annual fundraising plan approved and was able to meet its objectives.

## **Principle 2 – Structure of the council to add value**

The Council of the Foundation in 2019 consisted of the following members:  
Unless otherwise noted all terms are annual.  
Member of the Foundation Council were eligible to attend two meetings in 2019

### **Executive**

President, Emeritus Professor Anne Green FTSE  
Appointment term: 2017 AGM until 2020 AGM  
Meetings attended: 2

Deputy President, Mr Michael Winternitz  
Appointment term: 2018 AGM until 2020 AGM  
Meetings attended: 2

Professor Iain Young  
Meetings attended: 2 (appointed Dean in June 2018)

### **Members**

Professor Dame Marie Bashir AD CVO  
Meetings attended: 2

Professor Celine Boehm (Ex-officio Head of School)  
Meetings attended: 2

Dr Gregory Clark AC FTSE  
Meetings attended: 1

Mr Trevor Danos AM  
Meetings attended: 2

Professor Gemma Figtree FRACP, FCSANZ, FAHA  
Meetings attended: 1 (appointed October 2019)

Mr James R. Kirby  
Meetings attended: 0 (appointed October 2019)

Professor Gregory McRae  
Overseas Member

Council members were elected at the Foundation's AGM on 19 February 2019. There is not a separate nomination committee of Council. All terms are annual except for the President and Deputy President who serve for two years. The full Council resolves on nominations for co-opting of members to fill vacancies outside of the process of election at the AGM. There was no performance evaluation of the Council undertaken in the reporting period.

## **Principle 3 – Promote ethical and responsible decision-making**

Council members have been provided with the University of Sydney Foundation Rules, Code of Conduct, Work Health & Safety policy and the External Interests policy. All these policies are available on the University's Policy Register, as are other relevant University policies regarding harassment, grievance procedures and the Delegations of Authority.

# Foundation Governance Statement Cont.

## **Principle 4 – Safeguard integrity in financial reporting**

The annual accounts of the Foundation are prepared by the financial staff of the University, signed off by Finance Director, Divisions of Natural Sciences, Engineering & Information Technologies and Business and included in this Annual Report to the Senate. The Foundation is part of the University and therefore does not have its own audit sub-committee. While the Annual Financial Report of the University is audited by the Audit Office of NSW, the Annual Report of the Foundation has not itself been audited.

The Foundation undertook the following fundraising appeals during 2019: Donations  
In conducting those appeals the Foundation took all reasonable steps to ensure that commissions paid or payable to any person as part of a fundraising appeal did not exceed one-third of the gross money obtained by that person in the appeal and appropriate particulars of all items of gross income received or receivable, all items of expenditure incurred, including the application or disposition of any income obtained from the appeal and particulars of those transactions to which they related were recorded in the minutes of the Foundation.

## **Principle 5 – Make timely and balanced disclosure**

The Foundation complied with the reporting and disclosure requirements of the Senate. These include an annual budget and this Annual Report

Members and Council have been made aware of the processes for disclosure pursuant to the Code of Conduct, External Interests policy, which include protected disclosure to the ICAC, to the Ombudsman or the Auditor General.

## **Principle 6 - Respect the rights of shareholders, members, staff, volunteers, clients, & other stakeholders**

The Foundation Council and/or membership consist of members of the community, industry bodies and the University whose input is invited via the Annual General Meeting and Council meetings of the Foundation. The following forums/mechanisms have been held during the year to involve stakeholders in election of the Council, activities of the foundation or other stakeholder participation. Invitations to the

Annual General Meeting and two meetings per year.

Under the Charitable Fundraising Act, the University may be questioned about any appeal on details of the purpose of the appeal such as the appeal target, objectives, distribution of proceeds, and the process to provide answers. During the year, the Foundation published information on its website and outlines those activities in this annual report. Any requests for information are responded to by the Foundation office. Other enquiries may have been made to other parts of the University.

## **Principle 7 - Recognise and manage risk**

The Foundation recognises its activities within University premises or other premises require risks such as health and safety, environmental protection, privacy, trade practices, and compliance with the Charitable Fundraising Act to be considered and managed. The Foundation has managed these risks during the year by adhering to University policies concerning events, publications and external relations activities.

## **Principle 8 – Remunerate fairly and responsibly**

No member of a Council is entitled to receive any remuneration for acting in that capacity except reasonable remuneration on a basis which has first been approved in writing by the University Officer (Foundations)

Members of the Foundation Council may be reimbursed for reasonable expenses after written approval of the University Officer (Foundations). Any such instances are recorded in the minutes of the Council

# 2019 Finance Statement



Annexure 1

NSW 2006 AUSTRALIA

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**TO:** Financial Control and Treasury

**FROM:** University Officer (Foundation)

**SUBJECT:** Certificate of Operations

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## CERTIFICATION

I hereby certify that the activities reflected in the Financial Statements for the year ended 31 December 2019 of the Physics Foundation fully complies with the Foundation Rules.

Any areas of non-compliance or departure from such governing rules have been advised in writing to the Provost / Deputy Vice-Chancellor responsible for overall governance of the Foundation's operations.

A handwritten signature in black ink, appearing to read 'Iain Young'.

Signature: \_\_\_\_\_

Professor Iain Young

University Officer (Foundation)

Date: 18 February 2020

# 2019 Balance Sheet

## The University of Sydney

*Uni of Syd Physics Foundation (L7500\_SCI\_FND\_PHYS)*

### Balance Sheet

as at 31 December 2019

|                                  |   | 31 December<br>CY2019 | 31 December<br>CY2018 |
|----------------------------------|---|-----------------------|-----------------------|
| <b>ASSETS</b>                    |   |                       |                       |
| CURRENT ASSETS                   |   |                       |                       |
| Cash                             |   | 0                     | 1,342                 |
| Short Term Funds                 | 3 | 1,011,140             | 1,717,469             |
| <b>Total Current Assets</b>      |   | <b>1,011,140</b>      | <b>1,718,811</b>      |
| NON CURRENT ASSETS               |   |                       |                       |
| Medium/Long Term Investments     | 3 | 21,258,242            | 19,777,317            |
| <b>Total Non Current Assets</b>  |   | <b>21,258,242</b>     | <b>19,777,317</b>     |
| <b>TOTAL ASSETS</b>              |   | <b>22,269,382</b>     | <b>21,496,128</b>     |
| <b>LIABILITIES</b>               |   |                       |                       |
| CURRENT LIABILITIES              |   |                       |                       |
| Payables                         |   | (27)                  | (27)                  |
| <b>Total Current Liabilities</b> |   | <b>(27)</b>           | <b>(27)</b>           |
| NON CURRENT LIABILITIES          |   |                       |                       |
| <b>TOTAL LIABILITIES</b>         |   | <b>(27)</b>           | <b>(27)</b>           |
| <b>NET ASSETS</b>                |   | <b>22,269,409</b>     | <b>21,496,155</b>     |
| <b>EQUITY</b>                    |   |                       |                       |
| Accumulated Funds                |   | 22,269,409            | 21,496,155            |
| <b>TOTAL EQUITY</b>              |   | <b>22,269,409</b>     | <b>21,496,155</b>     |

#### Notes to Financial Statements

##### 1. Accounting Policies

- The financial statements have been prepared on a modified accrual accounting basis.
- All fixed assets are expensed in the year of purchase.
- Employee entitlements for Long Service Leave are held centrally in the University's accounts.
- The University (including the Foundations) is exempt from income tax.

2. The funds reported herein are overseen by the Physics Foundation, which was set up by the late Professor Harry Messel to promote education and research in the physical sciences. These funds are used to support the International Science School (which runs biennial events for high achievers in senior high schools throughout the world), with surplus, annual investment returns made available, subject to Foundation and University Treasury approvals, to support the School of Physics in its teaching and research endeavours.

3. Short Term and Long Term Investments include \$5,982,105 of the Messel Endowment (\$5,779,020 in 2018) managed by the University of Sydney to retain its value in accordance with the commitments made by the Foundation when the Endowment was established.



# 2019 Statement of Changes in Equity

The University of Sydney  
*Physics Foundation (L7500\_SCI\_FND\_PHYS)*

## Statement of Changes in Equity for the Year Ended 31 December 2019

|                                                              | Note | Foundation<br>Operations<br>(L7501)<br>\$ | Messel<br>Endowment<br>(L7505)<br>\$ | International<br>Science<br>School (L7502)<br>\$ | Total<br>\$       |
|--------------------------------------------------------------|------|-------------------------------------------|--------------------------------------|--------------------------------------------------|-------------------|
| <b>Balance as at 1 January 2018 [Non-ISS Year]</b>           |      | <b>14,962,987</b>                         | <b>5,401,039</b>                     | <b>165,383</b>                                   | <b>20,529,409</b> |
| Add (Less): Accumulated Funds Adjustments                    | 4    | 42,450                                    | 0                                    | 0                                                | 42,450            |
| Add: External Income (incl. Investment Income and Donations) |      | 640,007                                   | 377,981                              | 16,270                                           | 1,034,258         |
| Add (Less): Intra-Foundation Funds Transfer                  |      | 0                                         | 0                                    | 0                                                | 0                 |
| Less: Funds Transferred to Physics                           |      | 0                                         | 0                                    | 0                                                | 0                 |
| Less: Expenditure                                            |      | (47,136)                                  | 0                                    | (62,826)                                         | (109,962)         |
| <b>Balance as at 31 December 2018</b>                        |      | <b>15,598,308</b>                         | <b>5,779,020</b>                     | <b>118,827</b>                                   | <b>21,496,155</b> |
| <b>Balance as at 1 January 2019 [ISS Year]</b>               |      | <b>15,598,308</b>                         | <b>5,779,020</b>                     | <b>118,827</b>                                   | <b>21,496,155</b> |
| Add (Less): Accumulated Funds Adjustments                    | 4    | (1,374)                                   | 0                                    | 20                                               | (1,354)           |
| Add: External Income (incl. Investment Income and Donations) |      | 1,591,946                                 | 501,929                              | 111,981                                          | 2,205,856         |
| Add (Less): Intra-Foundation Funds Transfer                  |      |                                           | (283,363)                            | 283,363                                          | (0)               |
| Less: Funds Transferred to Physics                           | 6    | (750,000)                                 | 0                                    | 0                                                | (750,000)         |
| Less: Expenditure                                            |      | (154,225)                                 | (15,481)                             | (511,542)                                        | (681,248)         |
| <b>Balance as at 31 December 2019</b>                        |      | <b>16,284,655</b>                         | <b>5,982,105</b>                     | <b>2,649</b>                                     | <b>22,269,409</b> |

### Notes to Financial Statements (...continued)

4 . The Accumulated Funds Adjustments total of \$1,354 in 2019 is a partial adjustment to the UEM overhead expenses (\$42,450) incorrectly reversed in the Foundation accounts during 2018.

# 2019 Statement of Income

The University of Sydney

*Uni of Syd Physics Foundation (L7500\_SCI\_FND\_PHYS)*

## Income Statement

for the Year Ended 31 December 2019

|                                         | 31 December<br>CY2019 | 31 December<br>CY2018 |
|-----------------------------------------|-----------------------|-----------------------|
| <b>INCOME</b>                           |                       |                       |
| Scholarships, Donations and Bequests    | 5,821                 | 19,082                |
| Business and Investment Income          | 29,270                | 35,035                |
| Realised Gain / (Loss) on Investments   | 259,716               | 88,453                |
| Unrealised Gain / (Loss) on Investments | 1,900,622             | 943,841               |
| Investment Administration Fee           | (68,530)              | (64,870)              |
| Internal and Other Income               | 362,318               | 12,718                |
| <b>Total Income</b>                     | <b>2,489,217</b>      | <b>1,034,259</b>      |
| <b>EXPENDITURE</b>                      |                       |                       |
| Salaries                                | 5 140,702             | 47,739                |
| Consumables                             | 17,478                | 4,400                 |
| Equipment and Repairs/Maintenance       | 2,648                 | 87                    |
| Services and Utilities                  | 6 1,016,267           | 10,083                |
| Travel, Conferences, Entertainment      | 431,400               | 6,576                 |
| Contributions to University areas       | 127                   | 0                     |
| Consultants and Contractors             | 7,255                 | 3,990                 |
| Student Costs and Scholarships          | 38,417                | 30,250                |
| Other expenses                          | 60,315                | 6,839                 |
| <b>Total Expenditure</b>                | <b>1,714,609</b>      | <b>109,964</b>        |
| <b>Surplus / (Deficit)</b>              | <b>774,608</b>        | <b>924,295</b>        |
| Accumulated Funds                       | 21,496,155            | 20,529,410            |
| Accumulated Funds Adjustments           | 4 (1,354)             | 42,450                |
| <b>Total Accumulated Funds</b>          | <b>22,269,409</b>     | <b>21,496,155</b>     |

### Notes to Financial Statements (....continued)

5. ISS-related salary expenses (including oncosts) were incurred in the employment of: Megumi Kikuchi in 2018 (\$48k); and Elizabeth Palmer (\$4k), John Bright (\$4k) and Megumi Kikuchi (\$53k) in 2019, for managing the International Science School activities. During 2019, Foundation funds totaling \$79k were also deployed to support the salaries of three Physics teaching and research staff members: Michael Hrvnevyh (\$2k), Maryanne Large (22k) and Cliff Kerr (\$55k). For 2019, Chris Stewart (ISS Director) was not paid by the Foundation.

6. In 2019, \$750k was transferred to the School of Physics: \$200k to support teaching and research related activities, and \$550k for Grand Challenges (research) seed-funding initiatives. This \$750k amount is part of the first tranche of \$1.4m to \$1.5m annual allocation approved by the Foundation for a five year period, beginning in 2019/20 and ending in 2024/25. The total amount of Foundation support over the five year period is anticipated to be \$7.0m to \$7.5m (= \$1.5m x 5). Of this ~\$7.5m total, \$4m is derived from prior year investment returns, while the remaining 3.5m (= ~\$0.7m x 5) is derived from current and future annual investment returns (assuming a spending allocation rate of 4.5% per year, as it currently is).

I certify that the Income Statement and Balance Sheet of the Foundation have been prepared in accordance with the University's accounting practices and procedures. These Foundation accounts form part of The University of Sydney's financial reports.

*Jong Nheu*  
Jong Nheu  
Finance Manager  
School of Physics  
28th February 2020

*Carma Du Plooy*  
Carma Du Plooy  
Finance Director  
Financial Services - Science, Engineering and Architecture  
3 March 2020

