



ASTRONOMICAL SOCIETY OF AUSTRALIA

Incorporated in the ACT

ABN 37 660 297 848

President's Report for 2016/2017

The Australian National University, Wednesday 12th July 2017

1. Council members, 2016-2017

Virginia Kilborn	President
Stuart Wyithe	Vice President
Andrew Hopkins	Immediate Past President
John O'Byrne	Secretary
Marc Duldig	Secretary
Kate Gunn	Treasurer
Cath Trott	Councilor
Lee Spitler	Councilor
Duncan Galloway	Councilor
Naomi McClure-Griffiths	Councilor
Chris Power	Councilor
Chris Curtin	Student Representative
Daniel Price	(Ex-officio) Chair, PASA Editorial Board
Tanya Hill	(Co-opted) Prizes and Awards co-ordinator
Michael Brown	(Co-opted) Media and Outreach co-ordinator

Late last year, the ASA Council accepted the resignation of Duncan Galloway as Vice President. Article 16 of the Constitution states that the Council may invite a person to fill a vacancy and Stuart Wyithe agreed to take over as Vice President. Duncan Galloway remained on Council to fill the position vacated by Stuart. Many thanks to Duncan for his contributions to council as Vice President since July 2015.

The ASA Council also accepted the resignation of Ravi Sood as Treasurer. Once again via article 16 of the Constitution Kate Gunn agreed to take over as Treasurer. Ravi has undertaken an incredible effort to keep the membership and finances of our growing society in order, and we thank him for his contributions to the society over the past several years.

I would like to thank all council members for their contributions in the past year. Particular thanks go to council members holding ongoing roles in the society (John O'Byrne, Marc Duldig, Tanya Hill, Daniel Price and Michael Brown), and to the Treasurer Kate Gunn.

2. Highlights

ASA Database

The main activity for 2017 has been the development of a new membership database and website, led by Kate Gunn and John O'Byrne. This allows members to log onto the website to pay for membership dues online, and update other details such as address/email information and Chapter memberships. The database has now been implemented, and a new website is currently under construction. In recognition of the delay in renewal of membership dues, all members were offered the early-bird rate this year. We note that about 1/3 of all members have not completed their renewal payment as yet, and a reminder will be sent to members shortly. As part of the new membership system, members are required to agree to abide by the ASA code of conduct (this was always an implicit requirement but now members are required to agree by ticking the box).

ASA community news and awards

On 11 July 2017, Minister for Industry, Innovation and Science, Senator the Honorable Arthur Sinodinos, and the Director General of ESO, Professor Tim de Zeeuw signed a strategic partnership between ESO and Australia. The \$129M partnership provides 10-year access to ESO's La Silla and Paranal observatories, as well the opportunity for Australian industries to bid for ESO contracts.

In a boost to funding in to the astronomy community, 2 Centres of Excellence were awarded to astronomy last year, securing over \$60M in funding over the next 7 years;

- *The ARC Centre of Excellence for All Sky Astrophysics in 3 Dimensions*, centred at The Australian National University, will answer fundamental questions in astrophysics, including the origin of matter and the periodic table of elements, and the origin of ionisation in the Universe. The Centre, led by Professor Lisa Kewley, will capitalise on innovative Australian technology and instrumentation to propel Australia to the forefront of astronomical research.
- *The ARC Centre of Excellence for Gravitational Wave Discovery*, hosted at the Swinburne University of Technology, will explore the extreme physics of black holes and warped spacetime, inspiring the next generation of Australian scientists and engineers. Researchers at this Centre, led by Professor Matthew Bailes, will build on decades of Australian investment in gravitational wave and pulsar science, coalescing research activities into a focused national programme.

Members of the astronomy community was recognized in several awards over the past 12 months:

- Dr Lisa Harvey-Smith won the Department of Industry, Innovation and Science (DIIS) Eureka Prize for Promoting Understanding of Australian Scientific Research: Dr Lisa Harvey-Smith is a black hole hunter and a dynamic communicator, bringing astronomy and its real-world impacts to life. It is the strong engagement that Dr Harvey-Smith fosters with schools, institutions and her public audience, particularly girls and indigenous students, which sets her outreach apart.
- Two further members of the ASA community were finalists in the Eureka prizes this year - Dr Alan Duffy was a finalist in the Department of Industry, Innovation and Science Eureka Prize for Promoting Understanding of Australian Scientific Research,

and the Murchison Widefield Array was a finalist in the Scopus Eureka prize for Excellence in International Scientific Collaboration.

- Prof. Ken Freeman was honoured with the Companion of the Order of Australia: "For eminent service to astronomy through pioneering contributions in the field of galactic archaeology, as a leading astrophysicist and researcher, to tertiary science education, to professional academies, and as a mentor of young scientists."
- The late Dr Owen Bruce Slee, was awarded: Member (AM) in the General Division of the Order of Australia: "For significant service to science, particularly in the field of radio astronomy, as a researcher, author and mentor of young scientists." We were saddened by the death of ASA retired fellow Bruce Slee - Bruce was a very dear and valued member of the astronomy community, and his passing was a loss for all in the community who knew, or knew of him.
- Professor Malcolm Ross Walter was awarded Member (AM) in the General Division of the Order of Australia: "For significant service to science in the field of astrobiology as an author, academic, educator and mentor".

APRIM 2020

Australia won the bid to host the Asia-Pacific IAU Meeting (APRIM) in Perth in 2020. The bid was co-led by ICRAR and CASS, and was supported by the ASA, amongst other Australian institutes. George Heald made the presentation in early July in Taiwan.

50th anniversary celebrations

In 2016 we celebrated the 50th anniversary of the Astronomical Society of Australia, at the Annual Scientific meeting in Sydney, and the associated Harley Wood School. Highlights of the meeting included the first rainbow dinner; speed-meet-a-mentor including several industry mentors; a fantastic dinner at Doltone house, where the inaugural Peter McGregor prize for instrumentation was awarded to the SAMI team; an ASA birthday cake; and many high-quality talks. Photos from the conference are available here: <http://www.asa2016.org/conference-photograph/>. The Harley wood lecture was a thought-provoking talk presented by Dr Luke Barnes - a podcast of the talk is available here: <https://soundcloud.com/sydney-ideas>

3. ASA and related events in 2016/2017

The 11th Australian National Institute for Theoretical Astrophysics (ANITA) annual theory workshop and astroinformatics school were held 6th-10th February 2017 at the University of Tasmania, Hobart

- 6th - 8th Feb: Astroinformatics summer school, program online at <https://asa-anita.github.io/workshop2017/school.html>
- 9th - 10th Feb: ANITA workshop, covering all aspects of theoretical and computational astrophysics

Other Chapter workshops are scheduled for later this year, or early in 2018.

4. ASA membership

The ASA membership has remained about steady since 2016, with just over 700 members. Likewise the gender breakdown of the society has not changed since 2016, although the new database allows members to choose some options other than Female and Male.

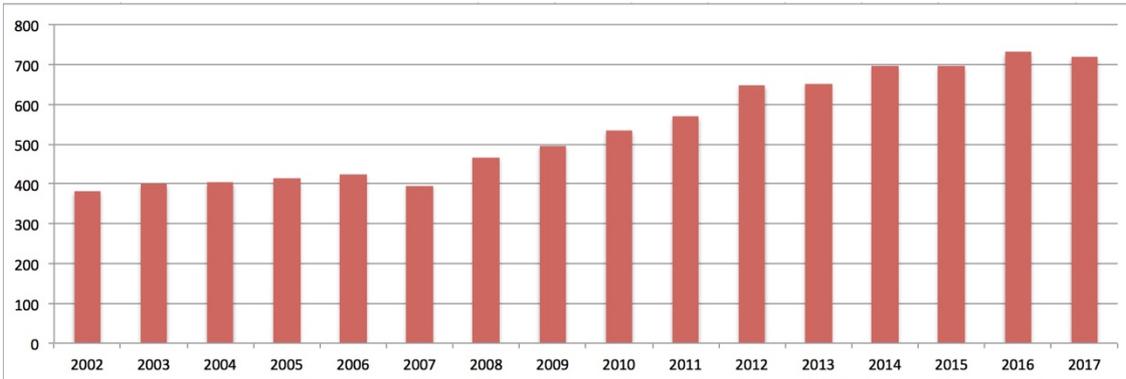


Figure 1: ASA members from 2002-2017

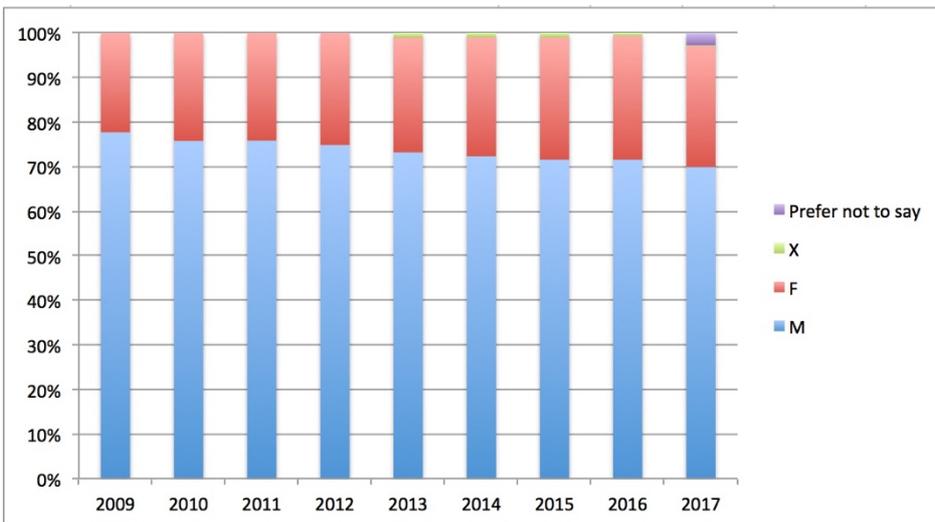


Figure 2: %M (blue) to %F (red) from 2009-2017

5. Honorary Fellow

Dr Tanya Hill

Dr Tanya Hill has been an enthusiastic public advocate for the ASA and for Astronomy in her role at the Melbourne Planetarium. Tanya has been the planetarium director since 1999, and in that time has created more than a dozen planetarium shows, and led the team that produced the recent internationally awarded planetarium show “Capturing the Cosmos”. Tanya has had more than 10 years of outstanding service on ASA council, and has worked tirelessly co-ordinating and managing the prizes over many years providing an invaluable service to the Society. Tanya is an honorary fellow at the University of Melbourne and the Australian representative for the European Southern Observatory’s Science Network Outreach. Tanya was the Harley Wood lecturer for the ASA in 2015.

6. Financial

Details on the Society’s finances and audited accounts are available in the Treasurer’s report.

7. Publications of the ASA (PASA)

PASA's latest ISI two-year impact factor (reflecting citations in 2016 to papers published in 2014 and 2015) was released in June 2017, and has risen to 4.095.

Other highlights of PASA are listed in the separate PASA report.

8. ASA Prizes and awards

The following prizes has been awarded during the 2016 Annual Scientific Meeting (ASM):

- **The Robert Ellery Lectureship for Outstanding contributions to Astronomy**

Winner: Professor Warrick Couch (AAO)

Warrick was born in New Zealand where he was educated through his school and undergraduate years obtaining a 1st class honours degree in Physics in 1976 and Masters degree in astrophysics in 1977 from Victoria University in Wellington. He moved to Australia for his PHD studies at ANU where he undertook observations the colours of galaxies in distant rich clusters and he provided the first independent confirmation of the Butcher-Oemler effect (where more blue galaxies are found in the past than are currently seen). His PhD was conferred in 1982.

Warrick took a postdoc at Durham University, returning to Australia for a 4 year fellowship at the Anglo-Australian Observatory (as it was then known). In 1989 Warrick took a job as lecturer at UNSW and by 2005 he was Professor and Head of the school.

In 2006 Warrick moved to take up the position of Distinguished Professor at Swinburne Centre for Astrophysics and Supercomputing. Later he obtained an ARC Professorial Fellowship there and in 2011 became the Director.

In 2012 Warrick was awarded an Honorary Doctor of Science by Victoria University.

Warrick left Swinburne to take up the Directorship of the AAO in 2013, where he is today.

Warrick's research work has continued to be centred around galaxy evolution and instrument development. He has had numerous significant research awards as well as many significant roles of service to the astronomy and physics science communities in Australia.

Warrick's research awards include:

- 2001 – Australian Citation Laureate Award (Thomson ISI)
- 2004 – Recognised as a "Highly Cited" researcher (Thomson ISI)
- 2007 – Gruber Prize in Cosmology (joint team winner) for his role in the discovery of the accelerating universe
- 2008 - Royal Astronomical Society Group Achievement Award (to 2dFGRS team)
- 2009 – Elected a Fellow of the Australian Academy of Science
- 2011 – Member of the Supernova Cosmology Project whose leader, Saul Perlmutter, was awarded the Nobel Prize
- 2015 Fundamental – Breakthrough Prize in Physics

Warrick's service to the scientific community includes:

- Chair, International Gemini Science Committee
- Vice-Chair and Australian representative, Gemini Board of Directors
- Chair, Anglo-Australian Telescope Board
- A Director of AAL and Chair of the Board of AAL
- Australian representative on the Board of Directors of the Giant Magellan Telescope

- President of the Australian Institute of Physics
and of course President of the ASA
- **The Bok Prize** for outstanding research in astronomy by an Honours or eligible Masters student.

Winner: Madeline Marshall for her thesis “Triggering Active Galactic Nuclei in Galaxy Clusters” completed at the University of Tasmania and supervised by Stanislav Shabala.

Highly Commended:

- Daniel Muthukrishna for his thesis “Deep Learning for the Spectral Classification of Transient Astronomical Objects” completed at the University of Queensland and supervised by David Parkinson and Brad Tucker (ANU)
- Chris Whittle for his thesis “Detecting a Gravitational-wave Stochastic Background” completed at Monash University and supervised by Eric Thrane.

Marshall inched forward as a winner due to her writing style and well-demonstrated independence. The thesis spanned a broad range of topics and implemented a lot of new physics in the semi-analytic modelling appropriate to the situation. She demonstrates excellent knowledge of the content and understands the context extremely well.

- **The Charlene Heisler Prize** for the most outstanding PhD thesis in Astronomy or a closely related field.

Winner: Paul Stewart for his thesis “Stellar Science with Cassini” completed at University of Sydney and supervised by Peter Tuthill.

Highly Commended:

- Louise Howe for her thesis “The Oldest Stars in the Galaxy – Searching for Metal-Poor Stars in the Galactic Bulge” completed at ANU and supervised by Martin Asplund
- Emily Petroff for her thesis “The transient radio sky observed with the Parkes radio telescope” completed at Swinburne and supervised by Willem van Straten, Matthew Bailes & Simon Johnston (CSIRO).

All three theses were highly competitive. Stewart’s work stood out for its originality. It presents a clever use of existing technology and was a highly productive thesis that was extremely well written. Overall it was an impressive body of work.

- **The Louise Webster Prize** for outstanding research by a scientist early in their post-doctoral career.

Winner: Dr Keith Bannister (CSIRO) for his work “Real-time detection of an extreme scattering event: Constraints on Galactic plasma lenses” published in Science, Vol. 351, Issue 6271, pp. 354-356, 2016.

The Bannister, et.al. paper describes the application of a novel technique for detecting and monitoring extreme scattering events (ESEs). It demonstrates improved modelling of ESEs

and implications for understanding the structure of the interstellar medium and the total mass of the Milky Way. Although the short-term impact (i.e. citation counts) is relatively small, the development of a new observing strategy and the insight required for this innovation, along with an expanding research program and the demonstrated success of astrophysical analysis enabled by the observations shows the value and widespread impact of the work. The paper represents a significant advance in the field.

- **Encouraging gender diversity**

The ASA is strongly committed to improving the representation and status of women in astronomy. The Society expects that female candidates should comprise at least 20% of the nominations for each prize and encourages institutions to help achieve this goal.

Percentage of female nominations over previous years:

Prize	2017	2016	2015	2014	2013	2012
Bok	29%	50%	83%	50%	0%	17%
Heisler	43%	25%	40%	33%	25%	20%
Webster	0%	0%	100%	33%	0%	0%

Many thanks to Tanya Hill for overseeing the awards, and to the judges of the awards.

9. Inclusion, Diversity and Equity in Astronomy (IDEA) Chapter

The idea Chapter recently held elections, and Dan Zucker will take over from Sarah Brough as chapter chair. The aims of IDEA are:

- *The Chapter will represent minority groups working in astronomy in Australia, raise awareness of issues faced by these groups and undertake to establish best practice guidelines for supporting the inclusion of these groups in our community.*
- *The Chapter will monitor the status of minorities working in astronomy in Australia and recommend future actions that will improve the working environment for all astronomers.*
- *To improve the status of women in astronomy, the Chapter will assist to ensure appropriate representation for women within the Australian astronomy community, both at scientific meetings and on high-level decision-making committees.*
- *The Chapter will enable networking via annual IDEA sessions at ASA Annual Science Meetings and annual workshops held around the country.*

IDEA has had a large increase of >20% in membership, with now 184 members in the chapter. The major activity of IDEA in the last 12 months has been running the Pleiades awards. IDEA has brought in a new conference endorsement policy, and 3 conferences have been endorsed thus far. The annual Diversity in Astronomy workshop will be held at Macquarie University in September 2017.

10. Education and Public Outreach Chapter (EPOC)

Rob Hollow continues to chair the EPOC chapter, whose mission is:

To advance the level of public awareness of the excitement of astronomy and of the international

importance of Australian astronomy, while promoting the teaching of astronomy to students and the public.

Two editions of the EPOC Email Newsletter have been produced, the first was sent out in August 2016 and the second in March 2017. A third is in production. A timeline of quarterly editions has been established and they expect to promulgate this at the EPOC Lunch Meeting at the ASM. Michael Fitzgerald is acting as Editor.

The Chapter has also been working on revamping the EPOC and ASA media presence, and has set up a new outward-facing ASA facebook page (<https://www.facebook.com/AstroSocAus>), with moderators from EPOC. The closed-group facebook page will remain for ASA members. The ASA twitter feed has also been revamped, thanks to Kirsten Gottschalk for her work with both the twitter feed and facebook page, and to Michael Brown for leading the project.

11. Australian National Institute for Theoretical Astrophysics (ANITA)

The Chair of the ANITA Chapter remains Daniel Price.

ANITA is a virtual national institute which aims to ensure that the needs of Australian theoretical astrophysics are represented at a national and international level.

The goals of ANITA are to raise the profile of Australian theoretical astrophysics, encourage national collaboration, foster international links, facilitate theoretical astrophysics meetings, and provide input into national policy.

The ANITA theory workshop and summer school are the major activities of the chapter.

12. Early Career Research Chapter (ECR)

Sarah Martell continues to chair the ECR Chapter, and (at the time of writing the chapter is undergoing an election process for the new steering committee). The aims of the chapter are to:

- 1. Inform the members about opportunities for professional training and support*
- 2. Provide training for the members in areas of professional development*
- 3. Connect the members with each other, and also with senior researcher mentors, providing a support network*
- 4. Acting as an advocacy and representation body for its members*

Activities of the Chapter over the past 12 months include expanding the Astronomers in Industry list, running an ECR workshop at the annual ICRAR mini-conference, and consulting with AAL on how best to involve ECRs in the AAL committees.

13. Communications (Information flow to members)

The ASA email mailing list remains the primary communication avenue for ASA news. Members can post directly to the list asa@physics.usyd.edu.au. Michael Brown is the ASA's

media and outreach coordinator and oversees the ASA facebook and twitter accounts and provides general media advice to the society. The ASA (internal) Facebook Page continues to be a valuable avenue for quickly highlighting recent articles, awards and upcoming events. A new outwardfacing facebook page has been created and aims to provide information to a wider audience. The ASA twitter account (@AstroSocAus) has over 700 followers and regularly tweets ASA and general astronomy news. The ASA Events Calendar lists all ASA-sponsored events as well as conferences, workshops and meetings that are open to broad Australian and international participation (see <http://asa.astronomy.org.au/calendar.html>).

This year, ASA council sent the following email to the membership:

The Astronomical Society of Australia vigorously objects to the US travel ban that was recently imposed by the Trump Administration. Even though major parts of the travel ban are currently blocked there is a high level of uncertainty for many traveling to the US. Along with other scientific organisations including Science and Technology Australia and the International Astronomical Union, we believe the far-reaching ban, and the uncertainty that has ensued since with ongoing legal action, is harmful to our colleagues, to the scientific community as a whole, and to scientific progress.

The ASA strives to be a supportive and inclusive organisation, which does not discriminate on the basis of gender, ethnicity, age, political views or religion. We are still assessing the impact of the ban on our community and how best to support ASA members. This being the case, ASA members who have been impacted by the ban are invited to contact the ASA president ([vkilborn at swin.edu.au](mailto:vkilborn@swin.edu.au)) so we can evaluate the extent of any effects on members and provide help where we can. We urge members to keep an eye on any current travel restrictions through their home institutes and travel agents, as circumstances may change at short notice.

Based on the responses to this email, it was clear several ASA members and students were affected by this travel ban, and as such Council wrote to Senators Sinodinos, Dutton and Bishop emphasizing the importance of international collaboration for the good of science. The correspondence can be found at the end of this report.

In addition, on behalf of the ASA I signed the STA's letter open letter for science:
<https://scienceandtechnologyaustralia.org.au/open-letter-for-science/>

14. Constitutional changes

A number of constitutional changes are required with respect to the wording associated with the society's awards. These will be presented to the ASA membership at the AGM for approval.

15. Progress against 2016/2017 priorities

1. Strategic planning with the ASA Chapters regarding structures and priorities.

This item is carried forward into 2017/18.

2. Review of engagement with the New Zealand professional astronomy community.

Council members have been proactively approaching the NZ professional community for participation in local conferences and workshops. This work will continue, but the priority item is now closed.

3. Conduct a census of Society membership to establish detailed demographic information.

The IDEA Chapter will undertake this item which is carried forward to 2017/18

4. Review ASA documents and policy with a view to ensure diversity and inclusion principles.

This item is will be completed shortly and the priority item is now closed.

5. ASA council will consider opportunities to make more public policy statements where appropriate, and increase participation with, and input into, STA.

The ASA has made several policy statements and contacted government ministers in the past 12 months. The president of the ASA has had regular contact with STA. Both of these activities will be continued into the future, and as such the action item is now closed.

6. Implementation of a new membership database and online subscription system

This item is complete.

7. Investigate the economic impact of astronomy activities in Australia, including a list of Australian commercial/industry outcomes.

This item has been undertaken by AAL (see <https://aalindustry.wordpress.com>)

8. Increase the visibility of the ASA, and Australian astronomy in general, eg. via coordinated press releases for the 2017 ASA ASM.

This item will be carried forward to the 2018 ASA ASM.

9. Continue working towards support for ECRs and growing the ASA Alumni network

This item has now been taken over by the ECR chapter.

16. New Priorities for 2016/2017

In addition to the carry-forward priorities, council has identified the following possible priorities to concentrate on for the next 12 months (for discussion):

1. Strategic planning exercise for the ASA, including all chapters
2. Develop and fund new initiatives to support the astronomy community
3. ... input from ASA members requested ...

17. ASA Council for 2016/2017

Stuart Wyithe	President
Cath Trott	Vice President
Virginia Kilborn	Immediate Past President
John O'Byrne	Secretary
Marc Duldig	Secretary
Kate Gunn	Treasurer
Lisa Harvey-Smith	Councilor
Daniel Zucker	Councilor
John Lattanzio	Councilor
Elisabete da Cunha	Councilor
Krzysztof Bolejko	Councilor
Chris Curtin	Student Representative
Daniel Price	(Ex-officio) Chair, PASA Editorial Board
Tanya Hill	(Co-opted) Prizes and Awards co-ordinator
Michael Brown	(Co-opted) Media and Outreach co-ordinator

This year, a large number of Councilors have had their term end. I'd like to thank Naomi McClure-Griffiths (2 years), Chris Power (2 years), Duncan Galloway (4 years), Lee Spitler (4 years) and Chris Curtin (1 year) for their contributions to council. Special thanks to Andrew Hopkins who is leaving council after 7 years of service – thank you for your leadership and contributions to the society.

18. Harley Wood School of Astronomy and ASM/AGM 2017

The 2016 HWSA and ASM/AGM will be hosted by the Swinburne University of Technology in June or July 2018.

19. Closing Remarks

With two new ARC Centres of Excellence, the new Australia-ESO strategic partnership, and progress with the SKA pathfinder telescopes, it is an exciting time to be in Australian astronomy.

The ASA remains committed to serving and supporting the community, and bringing Australian Astronomers together to collaborate and enhance research outcomes for Australia. I have every confidence in the incoming president, Professor Stuart Wyithe, to maintain and enhance the ASA's role in the Australian community.

Virginia Kilborn
President, Astronomical Society of Australia