

# **New South Wales Postgraduate Awards Day Report**

**By Dr Frederick Osman | AIP NSW Branch Chair and Awards Organiser**

The NSW Branch of the Australian Institute of Physics in conjunction with the Royal Australian Chemical Institute and the Royal Society of NSW held its annual Postgraduate Awards Day on Tuesday 14 November 2017 at the University of New South Wales.

Each New South Wales University was invited to nominate one student to compete for the \$500 prize and Postgraduate medal on that day. We would like to thank the generous support of The Royal Society of NSW as the sponsor to award the **Jak Kelly Scholarship prize of \$500 as a separate award category** for this event.

Previous winners of the Royal Society of NSW Jak Kelly Award include: 2010: Julian King (UNSW); 2011: Martin Fuechsle (UNSW); 2012: Andrew Ong (UNSW); 2013: Xavier Zambrana-Puylato (MAQ), 2014: Linh Tran (UOW); 2015: James Colless (USYD) and in 2016: Matthew Barr (UNCL). Students at the Postgraduate Awards event were asked to make a 20-minute presentation on their postgraduate research in Physics, and the presentation was judged on the criteria (1) content and scientific quality, (2) clarity and (3) presentation skills.

*The nominated speakers for 2017 were:*

- **Andrea De Lima Ribeiro, Macquarie University, Department of Physics and Astronomy – *Optical Remote Sensing of Water Temperature***
- **Moritz Merklein, University of Sydney, School of Physics – *A chip integrated optical buffer based on hyper-sound waves***
- **James Diacoumis, University of New South Wales, School of Physics – *The Dark Frontier: A novel way to probe dark matter physics in the early universe***
- **Kai Wang, Australian National University, Research School of Physics – *How do we make camera for quantum light?***
- **Elette Engels, University of Wollongong, Department of Physics – *New Advances in Nanoparticle-Enhanced, Image-Guided Microbeam Radiation Therapy***

- Trong Toan Tran, University of Technology Sydney, School of Mathematical and Physical Sciences – *Single photons from flatland*



From L–R: Kai Wang; Andrea De Lima Ribeiro; Moritz Merklein; Elette Engels; James Diacoumis and Trong Toan Tran

Students nominated for the awards were also invited as guests for the NSW AIP Branch annual dinner that followed the presentations. These awards have been created to encourage excellence in postgraduate work, and all nominees who participate in the Postgraduate Awards Day also received a **special framed certificate** recognising the nominee’s high standing.



The winner of the Australian Institute of Physics Postgraduate Presentation for 2017 was awarded to **Elette Engels, University of Wollongong, Department of Physics – New Advances in Nanoparticle-Enhanced, Image-Guided Microbeam Radiation Therapy.**

Elette received the 2017 Crystal Postgraduate figurine, and a \$500 award from the Australian Institute of Physics.



**Elette Engels, University of Wollongong, Department of Physics – 2017 AIP NSW Postgraduate Award Winner**

The Australian Institute of Physics congratulates Elette on this excellent achievement. The runners' up all received a small AIP medal and a special framed certificate recognising their high standing.

The winner of the Royal Society of NSW Jak Kelly Award for 2017 was awarded to **Moritz Merklein, University of Sydney, School of Physics – A chip integrated optical buffer based on hyper-sound**

waves. Moritz received the 2017 Crystal Jak Kelly Award and a Scholarship prize of \$500 from the Royal Society of NSW. The Royal Society of New South Wales congratulates Moritz on this excellent achievement.



**Professor Brynn Hibbert congratulating Moritz Merklein from the University of Sydney, School of Physics – 2017 Royal Society of NSW Jak Kelly Award Winner**

The AIP, RACI and RSNSW congratulates all the Postgraduate Presentations for their outstanding lectures!

I would like to sincerely thank the judging panel for their time and dedication in judging the presentations. The 2017 judging panel consisted of:

- **Mr Stephen Foster** – AIP NSW Branch
- **Professor Warrick Couch** – Director of the Australian Astronomical Observatory
- **Dr Erik Aslaksen** – The Royal Society of New South Wales

In its fourth year, the NSW Branch recognised the work of individuals for community outreach to the discipline of physics in New South Wales. The Award seeks to acknowledge an individual, with a clearly notable record of work in contributing to outreach, physics education, and has demonstrated passion for the study of physics in New South Wales.

The AIP congratulates Dr Ragbir Bhathal from the Western Sydney University as our fourth year winner of the **Community Outreach to Physics Award in 2017**.



**Dr Ragbir Bhathal – 2017 Community Outreach to Physics Award Winner**

Dr Ragbir Bhathal is a very deserving candidate for his advocacy for the study of physics both at the school and university levels and its popularisation in the community. He holds a PhD degree from the University of Queensland and has been involved for well over 30 years not only in teaching and advancing the knowledge of physics at the university level but also in outreach programs for the public, schools and Aboriginal students. He also served as an active member of the NSW AIP Branch Committee for a number of years. His interactive teaching methods in physics to over 450 engineering students at Western Sydney University won him two prestigious teaching awards, *viz*: the Australian Government's Office of Learning and Teaching 2014 Citation for Outstanding Contributions to Student Learning and the Western Sydney University's Distinguished Teaching Fellow in 2016.

Every year, Ragbir gives talks on physics, engineering and astrophysics to over 1000 students in schools in Sydney. He runs the very successful Engineering Frontiers program (previously called the Siemens Science Experience) to attract Year 10 students to take up the study of physics and engineering. Over the last ten years

over 2000 students have participated in the program. On behalf of the National Library of Australia he conducts the National Oral History Project on Eminent Australian Astrophysicists and Physicists to record their lives and scientific achievements for the national record. It is very similar to the more extensive American Institute of Physics program. The recordings of the interviews are deposited in the archives of the National Library and can be accessed online by members of the public and scholars. It provides great publicity to the physics community both nationally and internationally. Dr Ragbir Bhathal is a worthy recipient of the 2017 NSW Community Outreach to Physics Award from the New South Wales Branch of the Australian Institute of Physics.

The Postgraduate Awards day was followed by a talk from our invited speaker Professor Warrick Couch on the topic “Australian Astronomy in the new ESO era”.

The talk focussed on three things: (i) the outstanding scientific and technological opportunities that will come from the strategic partnership with ESO, (ii) the important role the AAO’s instrumentation capabilities have to play in maximizing these opportunities, and (iii) maintaining the AAT as a scientifically competitive research facility in the new ESO era.



**Dr Matthew Arnold with Professor Warrick Couch (2017 AIP NSW Postgraduate Awards Speaker)**

The talk was very well received and geared to scientists and members of the public alike with many discussions continuing later during the Annual dinner at the Giovanna Restaurant. The Australian Institute of Physics, Royal Australian Chemical Institute and the Royal Society of New South Wales thanks Professor Warrick Couch for his outstanding lecture!



**Tania Notaras, President of the Royal Australian Chemical Institute, Dr Frederick Osman, Chair of the Australian Institute of Physics NSW Branch with Professor Brynn Hibbert, President of the Royal Society of NSW**

The 2017 Awards Event was proudly sponsored by the Australian Institute of Physics, Royal Australian Chemical Institute and the Royal Society of New South Wales.



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