

**The Australian National University
 SPIE student Chapter Annual Report**

February 2018



Members' social activity, Pambula beach, Australia, March 24, 2017

Section 1 Chapter officers

Position	Name	Email Address	SPIE ID#
President	Kai Wang	kai.wang@anu.edu.au	3728029
Vice President	Matthew Parry	matthew.parry@anu.edu.au	1382123
Secretary	Khosro Zangeneh Kamali	khosro.zangeneh@anu.edu.au	4053814
Treasurer	Maryam Boozarjmehr	maryam.boozarjmehr@anu.edu.au	3693098
General Officer	Maria del Rocio Camacho Morales	rocio.camacho@anu.edu.au	3500596
General Officer	Eliezer Estrecho	eliezer.estrecho@anu.edu.au	3691973

Section 2 Chapter Members

Current Members (16)			
1	Rifat Ahmmed Aoni	9	Matthew Parry
2	Maryam Boozarjmehr	10	Manju Perumbil
3	Maria del Rocio Camacho Morales	11	Vidur Raj
4	Eliezer Estrecho	12	Kai Wang
5	Md Hasan Furhad	13	Jingshi Yan
6	Aswani Gopakumar Saraswathy Vilasam	14	Quanlong Yang
7	Tahseen Kamal	15	Khosro Zangeneh Kamali
8	Shaun Lung	16	Sergey Kruk (Alumni)

Section 3 Activities

This year we have fulfilled all goals set by the plan, organizing a variety of activities including outreaches, SPIE visiting lecture, recruitment event and members' socializing activity. We held an election and 4 official meetings.

To highlight, this year we have further *expanded the diversity of our student members*, with more members coming from different departments. For activities, we particularly emphasized on *scientific interactions* and *outreach activities*. Besides, we managed to have a high percentage of new student officers (67%, mostly early-year PhD students or master students) to enable a smooth transition of expertise in chapter management in the future.

March 2017 – Members' Social Activity (Pambula Beach Trip)

To provide our members an opportunity to socialize with each other, together with the OSA student chapter, we organized a beach trip to Pambula beach in NSW, Australia. The attendees were our members and their invited friends/family, with in total about 18 people joining the trip.



Expenditure: BBQ and drinks –AUD \$82.73

13 April 2017 – Recruitment Event (SPIE and OSA Night)

To boost our student membership, we organized a recruitment event – SPIE and OSA Night. During this event, fellow students in optics got together with food and drinks, socializing with each other and getting information about SPIE and OSA student chapters. The event was organized together with the OSA student chapter. The event was well received, and we indeed got new SPIE student members right after the event. Attendee number was about 25.



Expenditure: Food and drinks AUD\$112.85

May 2017– Professional development (Student Talk Competition)

In the Australian National University, we organized a student talk competition along with the OSA student chapter where undergraduate and master students in optical physics are encouraged to research on a specific topic and present to their fellow students in a 10-min talk (two as a team). The talks were judged by our student chapter officers. The OSA student chapter sponsored the prizes of this competition. There were in total 21 students participating the competition plus 5 referees.



Student talk competition (two sessions)



Awarding ceremony for the best talk (recipients Dan Gould and Yun Chen)

Expenditure: Drinks for the awarding AUD \$49.45

1 June 2017 – Outreach (High school demonstration)

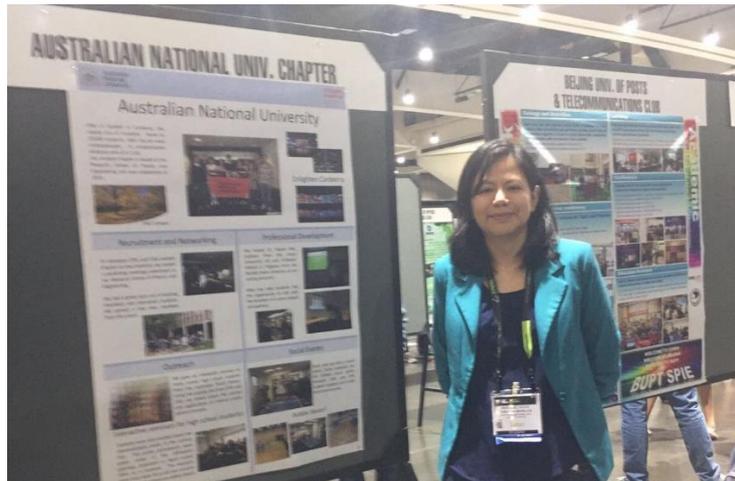
Three of our student officers visited Merici College in Canberra and gave a demonstration on waves and optics to year 11 high school students for a special physics course. Under the guidance of our chapter officers, a group of about 10 students did some hands-on optical experiments that helped them to understand the concepts explained before in physics lessons. The outreach encouraged school students to study optics and photonics, and to keep their passion on science in general.



Year 11 physics course outreach

August 2017 – SPIE Optics + Photonics Conference and Leadership workshop

Our chapter officer Maria del Rocio Camacho Morales attended the SPIE Optics + Photonics conference and Leadership workshop representing our student chapter. She presented a poster for our student chapter and enjoyed the academic activities and professional development workshops and shared her experience with chapter members afterwards.



Maria del Rocio Camacho Morales presenting a poster for our student chapter in San Diego

14 December 2017 – Visiting Lecture

On Dec. 14 the SPIE ANU student chapter organized the visiting lectures given by Prof. Demetri Christodoulides and A/Prof. Khajavikhan from CREOL, University of Central Florida, US. Prof. Christodoulides gave a highly exciting lecture on two topics: Parity-Time Symmetry in Optics and Airy beams. After a short afternoon tea, A/Prof. Khajavikhan gave a fascinating lecture on Coherence and Collective Properties of Metallic Nanolasers. The number of attendees was about 45.

After the two SPIE lectures, the student chapter also organized a socializing event for students to have an opportunity meeting the SPIE visiting lectures.

Visiting lecturers' short biography:

Demetri Christodoulides is a Pegasus and Cobb Family Endowed Chair Professor at CREOL-the College of Optics and Photonics of the University of Central Florida. He received his Ph.D. degree from Johns Hopkins University in 1986 and he subsequently joined Bellcore as a post-doctoral fellow at Murray Hill. Between 1988 and 2002 he was with the faculty of the Department of Electrical Engineering at Lehigh University. His research interests include linear and nonlinear optical beam interactions, synthetic optical materials, optical solitons, and quantum electronics. He has authored and co-authored more than 325 papers. He is a Fellow of the Optical Society of America and the American Physical Society. In 2011 he received the R.W. Wood Prize of OSA.

Mercedeh Khajavikhan received B.S. and M.S. in Electronics from Amirkabir University of Technology, Tehran, Iran, in 2000 and 2003, respectively, and Ph.D. in Electrical Engineering from University of Minnesota in 2009. Her Ph.D. dissertation was on coherent beam combining for high power laser applications. In 2009, she joined University of California in San Diego as a postdoctoral researcher where she worked on the design and development of nanolasers, plasmonic devices, and silicon photonics components. Then she worked as a researcher in UCSD, developing new techniques for low cost imaging systems. Currently she is an Assistant Professor in CREOL-the College of Optics and Photonics of the University of Central Florida.



Visiting lectures and social event with the lecturers

Expenditure: Afternoon tea (snacks, coffee & tea), drinks and refreshments for the socializing event, surface transportation: in total AUD \$207.02

January 2018 – Outreach (National Youth Science Forum)

Based on the optical tool kit, we gave interactive seminars on some interesting optical phenomena and demonstrated those effects with senior high school students attending the National Youth Science Forum. Each seminar was 45 minutes long, during which 2 of our chapter members demonstrated polarization and diffraction followed by hands-on experiments. The students were then taken to the optics lab of Nonlinear Physics Centre to see how the simple concepts introduced in the demonstration can be applied to research. A total of about 40 (2 groups of 20) students attended our two sessions.

National Youth Science Forum (NYSF) Short Bio

The NYSF's mission is to provide community minded and science focused young Australians an opportunity for network development and insight into skills, careers and a lifetime of achievement in science, engineering and technology. The flagship event of the NYSF is the January Forum. Until recently this event had been held exclusively in Canberra and hosted by The Australian National University.



Jingshi Yan and Khosro Zangeneh Kamali demonstrating optical hands-on experiments

Section 4 Planned activities

Nanophotonics workshop and visiting lecture. On 5 March 2018, we will organize our visiting lecture given by Prof Nader Engheta (40 estimated attendees). On 6&7 March, we will support a two-day workshop [Nanophotonics 2018 – The Next Frontier](#), which features 9 overseas invited speakers (Nader Engheta, Harald Giessen, Anatoly Zayats etc.), 26 domestic speakers (including Yuri Kivshar, Chennupati Jagadish, Ben Eggleton, etc.) and about 100 estimated attendees. The workshop is mainly funded by ANU and CUDOS. The chapter may support some food and drinks for social events during the workshop to give students an opportunity to meet the speakers.

Celebration for the International Day of Light. In May, we will organize sessions of student talk competition on optics as part of the celebration for the *International Day of Light* (~25 attendees).

Social event for members. We will organize a social event as a benefit for members, keeping them better in touch with each other (~15 attendees).

Recruitment event. We will also organize a recruitment event to help boost our student members (estimated 25 attendees) and the impact of our SPIE student chapter.

Outreach activities. We will keep an active role in outreaches, such as the National Youth Science Forum (estimated 40 attendees) and school outreaches.

Section 5 Financial information

Beginning balance = AUD \$8.74

Items	Credit (AUD)	Debit (AUD)
SPIE activity grant 2017	884.38	
Recruitment (SPIE and OSA Night)		-112.85
Members' social activity (BBQ and drinks)		-82.73
Student talk competition (drinks)		-49.45
SPIE lecture (afternoon tea, social event, surface transport)		-207.02
Ending Balance (AUD) (as of 28 Feb 2018)	+441.07	