

Abstract

Funds were requested to support the attendance of junior scientists at two international conferences: the International Symposium on Phototrophic Prokaryotes (ISPP) and the International Conference on Microbial Photosynthesis (ICMP). Both were held on the campus of the University of British Columbia in Vancouver in August of 2018. The primary goal of the ISPP was to provide a forum for students and senior investigators to gather in an informal setting to share new scientific findings on all aspects of bacterial phototrophs (both anoxygenic and oxygenic). The ICMP appealed to those working on photosynthetic processes in these organisms as well as in eukaryotic phototrophs for other reasons (e.g. as major producers in the oceans, as models for marine phytoplankton, as biofuel-producing systems, etc.). The ICMP was designed to follow the ISPP such that students and postdocs could attend two conferences for the travel costs of one. The funds were used to defray the registration costs of graduate student and postdoctoral attendees to make it even more affordable for junior scientists.

Conference Leadership

A. 16th International Symposium on Phototrophic Prokaryotes (ISPP)

The primary organizer of ISPP 2018 was Prof. J. Thomas Beatty (University of British Columbia). He was assisted by a Local Organizing Committee (LOC), consisting of the following members:

- Donald Bryant (Pennsylvania State University, State College)
- Cheryl Kerfeld (LBNL; Michigan State University, East Lansing)
- Andrew Lang (Memorial University, St. John's)
- Sean Crowe (University of British Columbia)
- Alexandre Poulain (University of Ottawa, Ottawa)
- Devaki Bhaya (Stanford University, Palo Alto)
- Vladimir Yurkov (University of Manitoba, Winnipeg)
- George Owttrim (University of Alberta, Edmonton)
- Thomas Hanson (University of Delaware, Lewes)

There was also a subcommittee composed of a postdoctoral fellow and graduate students:

- Niko Finke (postdoc, University of British Columbia)
- Reynold Ferrera (graduate student, University of British Columbia)
- Kate Thompson (graduate student, University of British Columbia)
- Jenifer Spence (graduate student, University of British Columbia)
- Avery Noonan (graduate student, University of British Columbia)

MK Scientific, a local scientific conference management company, was responsible for much of the work on site. To comply with the laws of British Columbia, a non-profit society was incorporated in BC to be responsible for the finances. The **International Symposium on Phototrophic Prokaryotes Vancouver Society** has 3 directors, all members of the LOC: J. Thomas Beatty, A. Lang and A. Poulain.

B. ISPR Conference on Microbial Photosynthesis (ICMP)

The primary organizer of the ICMP was Prof. Kevin Redding (Arizona State University). He was assisted by an Organizing Committee, consisting of the following members:

- Jesús Badillo (Instituto Politécnico Nacional, México)

- Tom Beatty (Univ. of British Columbia, Canada)
- Donald Bryant (Pennsylvania State Univ.)
- Fiona Davies (Colorado School of Mines)
- Woodward Fischer (California Inst. of Technology)
- John Golbeck (Pennsylvania State Univ.)
- Beverley Green (Univ. of British Columbia, Canada)
- Arthur Grossman (Carnegie Inst., Stanford)
- David Kehoe (Indiana University)
- Cheryl Kerfeld (Michigan State Univ., LBNL)
- Krishna Niyogi (Univ. of California, Berkeley)
- Himadri Pakrasi (Washington Univ. St Louis)
- Graham Peers (Colorado State Univ.)
- Matthew Posewitz (Colorado School of Mines)
- Alexandra Worden (Monterrey Bar Aquarium Research Institute)
- Jianping Yu (National Renewable Energy Lab.)

There was also a sub-committee composed of graduate students and postdoctoral fellows:

- Preston Dilbeck (postdoc, Michigan State Univ.)
- Marina Klemencic (postdoc, Univ. of Umeå)
- Gábor Méhes (postdoc, Linköping Univ.)
- Gregory Orf (postdoc, Arizona State Univ.)
- Amy Zheng (PhD student, Vanderbilt Univ.)

MK Scientific also assisted Prof. Redding with the ICMP. To comply with the laws of British Columbia, a non-profit society was incorporated in BC to be responsible for the finances. The **International Conference on Microbial Photosynthesis Vancouver Society** has 3 directors: Kevin Redding, Beverley Green, and Thomas Beatty. (At least one of the directors must be a BC resident.)

Conference Organization: ISPP

Researchers from around the world were invited to present their work at the ISPP.

Keynote Speakers

- Robert Blankenship (Washington University, St. Louis)
- Donald Bryant (Pennsylvania State University)

Plenary Speakers

- Tanai Cardona (Imperial College, London)
- Osvaldo Ulloa (University of Concepcion, Concepcion)
- Jörg Overmann (University of Braunschweig, Braunschweig)
- Patricia Sanchez-Baracaldo (University of Bristol, Bristol)
- Meinhard Simon (University of Oldenburg, Oldenburg)
- Julia Maresca (University of Delaware, Newark)
- Elke Dittmann (University of Potsdam, Potsdam)
- Arpita Bose (Washington University, St. Louis)
- Robert Haselkorn (University of Chicago)
- Conrad Mullineaux (Queen Mary University, London)
- Annegret Wilde (University of Freiburg, Freiburg)
- Judith Armitage (University of Oxford, Oxford)
- Fevzi Daldal (University of Pennsylvania)
- Neil Hunter (University of Sheffield, Sheffield)

- Wim Vermaas (Arizona State University),
- Eva-Mari Aro (University of Turku, Turku)
- Cheryl Kerfeld (LBNL; Michigan State University, East Lansing)
- Diana Kirilovsky (Université Paris-Sud, CNRS, Paris)
- Caroline Harwood (University of Washington, Seattle)
- Devaki Bhaya (Stanford University, Palo Alto)

The two Keynote Speakers kicked off the conference on Sunday afternoon, followed by a welcoming reception. Parallel sessions started each morning for the following four days. There were five broad Session Topics:

1. Phylogeny, Taxonomy and Evolution (Chairs, S. Crowe and V. Yurkov)
2. Environment and Ecology (Chairs, A. Poulain and A. Lang)
3. Physiology, Metabolism and Sensory Transduction (Chairs, T. Hanson and G. Owttrim)
4. Bioenergetics, Natural and Artificial Photosynthesis (Chairs, D. Bryant and T. Beatty)
5. Biotechnology and Synthetic Biology (Chairs, C. Kerfeld and D. Bhaya)

Each session will be chaired by a member of the LOC as noted above. All sessions have four invited ("Plenary") speakers, and depending on the number of abstracts obtained, each session may range from 10 to 31 talks (numbers based on ISPP 2015). The remainder (50 to 60) of the oral presentations were chosen from the submitted abstracts by the session chairs and the postdoc/graduate student subcommittee

All posters were in the Atriums *for the entire meeting*. They went up Sunday night and came down Thursday morning. About half of the poster presenters were presented by their posters for the Monday poster session, and the other half on Wednesday.

Conference Organization: ICMP

Researchers from around the world were invited to present their work at the ICMP.

Keynote Speakers

- Cheryl Kerfeld (Michigan State Univ., LBNL)
- Alexandra Worden (Monterrey Bay Aquarium Research Institute)
- Jondong Zhao (Institute of Hydrobiology, Chinese Academy of Sciences)

Invited Speakers:

- Donald Bryant (Pennsylvania State University)
- Robert Burnap (Oklahoma State University)
- Roberta Croce (VU Amsterdam)
- John Golbeck (Pennsylvania State University)
- Marilyn Gunner (City College New York)
- Paul King (National Renewable Energy Laboratory)
- Graham Peers (Colorado State University)
- Gabriela Schlau-Cohen (Massachusetts Institute of Technology)
- Wendy Schluchter (University of New Orleans)
- Philippe Tortell (University of British Columbia)
- Iftach Yacoby (Tel Aviv University)
- Jamey Young (Vanderbilt University)

Note that the Student & Postdoc Subcommittee were tasked with inviting 3 speakers, with the goal of getting at least 2 to accept. They succeeded splendidly. We had a special lunch session with those Invited Speakers (Graham Peers and Gabriela Schlau-Cohen) and young scientists.

A Keynote lecture was part of each day of the conference (except for the last). Talk revolved around the following topics:

1. Light harvesting & Antenna complexes
2. Regulation of light harvesting
3. Photochemical RCs and light-driven electron transfer
4. Electron transfer proteins and mechanisms within cyclic & linear electron flow
5. Electron transport & proton pumping: regulation & alternative pathways
6. Carbon fixation, storage, and export
7. Ecology and ecophysiology of phototrophs (will probably be two sessions)
8. Phototropism & light sensing in phototrophs
9. Evolution of photosynthetic proteins and mechanisms
10. Symbioses & endosymbioses
11. Pigment and cofactor synthesis
12. Biogenesis of protein-cofactor complexes
13. New phototrophic organisms, pigments, processes
14. Synthetic biology & metabolic engineering
15. Systems biology & biofuels

Most sessions had at least one Invited Speaker. The remainder of the oral presentations were chosen from the submitted abstracts. Each session had a Chair. We succeeded in recruiting many early-career scientists for this role. Each Chair was responsible for running the session and assisting in abstract selection. They were not be expected to give an exhaustive introduction on the topic of the session, so that they could give a short talk.

All posters were in the West Atrium *for the entire meeting*. They went up Thursday night and came down Sunday night. Half of the postors presented their posters in the Friday poster session, and the other half on Saturday. For Sunday, we did something innovative, using an online reservation system in which presenters could offer times when they would be at their poster and those interested could reserve a time.

Announcement, registration and accommodations

Announcements for both conferences were posted on the ISPP 2018 website (<http://ispp2018.com>), and emails went sent to all ISPR members. The ISPP was announced by emails to all attendees of the previous ISPP (2015), and the ICMP was announced by emails to recent participants in any of the regional photosynthesis conferences (Eastern, Midwestern, or Western).

The list below details the 'Early Bird' registration costs for the ISPP. (All prices are in Canadian dollars and the current exchange rate is \$1.29 CAD per \$1 US.) The registration fees covered conference administration fees, lunches, coffee breaks, etc.

- Students and Postdocs – \$405
- Faculty/PI – \$630
- Industry – \$778.50

The list below details the 'Early Bird' costs for ISPR members. The registration fees covered conference administration fees, lunches, coffee breaks, etc. Non-members paid slightly extra to cover the cost of a 2-year ISPR membership. (This is the standard for all ISPR-supported conferences.)

- Undergraduate Student – \$260
- Graduate Student – \$425

- Postdoc – \$475
- Faculty/PI – \$630
- Industry – \$800

We made available to all attendees accommodations on the UBC campus at a substantial savings compared to the price of a typical hotel in Vancouver in August. They ranged from 4-(private) room apartments for \$55 CAD/night (ideal for students) to luxurious suites at \$220 CAD/night. All UBC accommodations are within a 10-minute walk of the venue. There was public transit available on campus as well.

Use of Funds

Each conference requested \$5000 (\$6410 CAD at the time) to support graduate student and postdoctoral attendees. On the abstract submission page, students and postdocs could indicate if they would like to be considered for such an award. Those selected received a substantial discount on the registration fee.

ISPP travel awards

Student awards: awards were given to 6 US students, for a total of \$2527 USD.

Postdoc awards: awards were given to 5 US postdocs, for a total of \$2391 USD.

Total awarded: \$4918 USD

Recipients

Students	Postdocs
Julie Bethany	Rafael Saer
Daniel Roush	Ming-Yang Ho
Vanessa Fernandes	Dr. Hemp
Christopher Gisriel	Breah LaSarre
Sigal Lechno-Yossef	Kristin Moore
Haruki Yamamoto	

ICMP travel awards

Student awards: awards were given to 13 US students, for a total of \$3842 USD.

Postdoc awards: awards were given to 8 US postdocs, for a total of \$2549 USD.

Total awarded: \$6391 USD (Note that the extra ca. \$1400 was obtained from registration fees, allowing us to fund 4 more students.)

Recipients

Students	Postdocs
Usha Lingappa	Michael Gorka
Jeffrey Johnson	Maxwell Ware
Po-Cheng Lin	Kapil Amarnath
William Johnson	Haijun Liu
Yongbin Kim	Doran Bennett
Benjamin Wolf	Gregory Orf
Andrey Kanygin	Preston Dilbeck
Amy Zheng	Ben Lucker
Hui-Yuan Chen	
Christine Lewis	
Cara Sake	
Yumin Lee	
Colin Gates	

