

ASP NEWS



Summer/Fall 2021

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President's Note



I am delighted to provide a note for the summer/fall newsletter, with updates on Council members, committee activities, special issues in *Photochemistry and Photobiology*, meetings and symposia.

Council member updates:

I wish to thank our executive, regular, and associate Council members, including those elected at our summer Council meeting:

- Mauricio Baptista
- Theresa Busch
- Houston Cole
- Shobhan Gaddameedhi
- Yu-Ying He
- Huang (Joe) Chiao Huang
- Shakeela Jabeen
- Masaoki Kawasumi
- Dae Joon Kim
- Verónica Bahamondes Lorca
- Jonathan Lovell
- Sherri McFarland
- Girgis Obaid
- Paul O'Mahoney
- José Robinson-Duggon
- Martin Schnermann
- Caradee Wright
- Xiaojing Yang
- Youngjae You
- Shiyong Wu

I am grateful to those who have rotated off Council and served in the ASP:

- Regina Discipio
- John Roque III

- Tadeusz Sarna
- John-Stephen Taylor

In addition to those at ASP Headquarters:

- Brett Burk
- Jill Drupa
- Lori Strong
- Amy Sullivan
- Amy Wride-Graney

And to our new assistant editor at Wiley:

- Andy Maldonado

Activities of our ASP committees have been notable:

Masaoki Kawasumi and Shobhan Gaddameedhi have done wonderful work in chairing the ASP Monthly Webinar Series. Our next speaker will be Jeffrey B. Travers (Boonshoft School of Medicine at Wright State University). Professor Travers is scheduled to speak on Thursday, September 2, 2021 at 1:00–2:00 pm Eastern Time. An upcoming speaker in the fall is Georg Wondrak (Pharmacology and Toxicology, University of Arizona).

Mauricio Baptista, Andrés Thomas, and Jean Cadet are progressing in our initiative to establish a Latin American branch of the ASP. This effort is being carried out in parallel with Dae Joon Kim and Verónica Bahamondes Lorca of the ASP Membership Committee, in their efforts to recruit members who are young faculty, postdocs, and students to foster their participation in the ASP.

Xiaoqing Yang of the Awards Committee is active in bringing to light awards which are sponsored by the ASP. Graduate students and postdocs are encouraged to apply for awards available through our society. Nomination procedures for ASP members are also available on our website for a variety of awards (<https://photobiology.org/awards/>):

- ASP Research Award
- ASP New Investigator Award
- ASP Light Path Award
- ASP Editor's Student Research Award
- ASP Urbach Student Travel Award

I thank Caradee Wright, Huang (Joe) Chiao Huang, and Ruediger Birenheide for maintaining our new ASP website. They have taken the former Photobiology for Kids site on our website and reestablished it as an ASP Online Resources for Educators and Students site. It is delightful to see links to resources and programs, designed to engage students and professionals. Enhancements to the educators' portion are currently underway.

I also thank Houston Cole and Shakeela Jabeen for their efforts in the new ASP Social Media Committee. Their work is underway, and includes a highlight of chapters of Photobiological Sciences Online (PSO) every two weeks (<http://photobiology.info/>). Their efforts are done in coordination with Caradee Wright and Joe Huang's ASP Online Resources for Educators and Students committee.

The Publications Committee is headed by Martin Schnermann with members Girgis Obaid and Youngjae You. They are helping to promote our journal, with the intention to recruit submissions more broadly.

Update on special issues in *Photochemistry and Photobiology*:

A special issue dedicated to the topics of Germicidal Photobiology and Infection Control in *Photochemistry and Photobiology* has appeared. This special issue is in Volume 97, Issue 3, May/June 2021, Pages: 461-464 (edited by David Sliney).

A special retirement issue for Edward L. Clennan in *Photochemistry and Photobiology* is completed. It consists of papers from colleagues,

friends, and former students. It will appear in *Photochemistry and Photobiology* in the next several months. In the issue, there are papers covering topics in photochemistry, photosensitization, photoinduced electron transfer, helical compounds, and fullerenes.

We are also pleased to say that there are additional special issues in *Photochemistry and Photobiology* on the horizon. These include the Karen Brewer memorial issue (guest editors: Sherri McFarland and Phoebe Glazer), and additionally a special issue on photocaging technology (guest editors: Martin Schnermann and Youngjae You).

Preparations will soon begin for a 50th Anniversary American Society for Photobiology issue. In this vein, we encourage you to submit high quality manuscripts to *Photochemistry and Photobiology*, which is the journal of our society.

Meetings and symposium:

European Society for Photobiology (ESP) 2021 congress will be held from August 30 to September 3, 2021 (<http://salzburg2021.photobiology.eu>).

PanAmerican Society for Pigment Cell Research (PASPCR) meeting on September 22–25, 2021 in Lexington, Kentucky (<https://paspcr2021.wordpress.com>).

ASP Biennial Meeting in Albuquerque, New Mexico in 2022. The year 2022 will mark the 50th anniversary of the establishment of the American Society for Photobiology as the premier international photobiology society. We are excited about this milestone and have sessions planned, including a Past Presidents' Bridges-to-the-Future (BTTF) symposium organized by Frank Gasparro and Albert Girotti. The BTTF symposium will include an appearance (via Zoom) of Dr. Kendrick Smith, our founder and the first president of the American Society for Photobiology. Also, high school students will

compete to submit their photoscience posters for one of ten travel awards (\$1,000 each) to attend our biennial meeting, in which the winners will present talks at the symposium.

The 2021 American Society for Photobiology Symposium Celebrating the 20th Anniversary of Theresa Busch at the University of Pennsylvania, took place on June 8, 2021 (<https://photobiology.org/asp-2021-symposium/>). It was a great success!

Speakers included:

Keith Cengel (University of Pennsylvania)
Jonathan Celli (University of Massachusetts, Boston)
Bin Chen (University of the Sciences)
Gwendolyn Cramer (University of Pennsylvania)
Sandra Gollnick (Roswell Park)
Tayyaba Hasan (MGH and Harvard University)
Huang-Chiao Huang (University of Maryland)
Srivalleesha Mallidi (Tufts University)
Sherri McFarland (University of Texas, Arlington)
Yi Hong Ong (University of Pennsylvania)
Gal Shafirstein (Roswell Park)
Bryan Q. Spring (Northeastern University)
Imran Rizvi (University of North Carolina)
Timothy Zhu (University of Pennsylvania)

I also thank our sponsors for the symposium: Modulight Inc., PhotoDynamic Inc., and ZenBio Inc.

Lastly, we welcome sponsors for not only our symposia and meetings, but also our webinar series. Feel free to contact Amy Sullivan at ASP Headquarters if this opportunity interests you (email: sponsors@photobiology.org). Also, feel free to contact me with any general or specific questions that you may have.

Alexander Greer, Ph.D.
President, American Society for Photobiology
agreer@brooklyn.cuny.edu
<http://academic.brooklyn.cuny.edu/chem/agreer/FirstPage.html>

Meet a Photobiologist



Dr. Caradee Wright

Q: How did you get interested in photobiology?

A: In late 1990s, I connected with Brian Diffey, a leader in the field of UV radiation and dosimetry, and he kindly provided me with some polysulphone films that degrade in sunlight that I could use to measure sunlight exposure. I also connected with Alfio Parisi, and met him in Australia, which helped inspire me to get into this field. I then did a PhD in New Zealand that involved using more modern electronic badges for solar monitoring. When I returned to South Africa, I started to build my own research program initially at the Council for Scientific and Industrial Research. Because I am interested in skin cancer prevention, I moved to the South African Medical Research Council. To effect change in this field, the goal is to translate your research into guidance and policy, and that can be done by working with the relevant public organizations.

Q: What are your research interests now?

A: I still study people's exposure to solar and ultraviolet radiation. It is important to understand this dosimetry, especially in South Africa, where we live in a sunny environment with high melanoma rates among the Caucasian population. We still use some of that equipment from my PhD in New Zealand. For example, a student in our group recently measured sunlight exposure on macadamia and fruit farms. Another student measured sunlight exposure in an open mining operation in Namibia.

Q: How did you get involved in ASP

A: I went to an ASP conference in Puerto Rico in 2006. I connected fabulously with the scientists there including Elisabeth Thieden. It's just one of those organizations where everyone is friendly and you can talk to anyone. I also appreciate the mentoring that occurs in the society. I have now joined the ASP as a council member to become more involved. I've been working on the ASP website and I see there is a lot more potential there.

Q: How do you see the field of photobiology moving forward?

Within my research area, the link between solar UV radiation exposure and skin cancers has now been well-established. We know sunscreen and other sun protection measures help prevent it, but people still get skin cancer unfortunately. Thus, from the dosimetry perspective, I feel we've done a lot, and I'm not sure how much more is needed. I am interested in what others think on this topic. But more broadly, we should do more to educate and disseminate knowledge about photobiology to the public and to other scientists. Even within the ASP, we should learn more about the other

branches of photobiology outside our own areas of expertise.

Coming soon... to ASP2022



Past Presidents' Bridge-to-the-Future Symposium and more

This event will occur at the ASP Biennial Meeting in Albuquerque, New Mexico in 2022

In 2022, we will be marking the 50th anniversary of the establishment of the American Society for Photobiology as the premier international photobiology society. To mark this occasion, we are organizing a Symposium whose description follows:

PAST-PRESIDENTS' BRIDGE TO THE FUTURE SYMPOSIUM (Gasparro & Girotti)

1. Video remembrances from 25th ASP meeting (1997 in St. Louis)
2. Presentation of the KC Smith Bridge to the Future Awards (see below)
3. Special Invited Lecture: Where is Photobiology and ASP Heading in the next 25 to 50 Years (Greer)

Announcing a special event for high school science fair projects:

Competition for the KC Smith Bridge to the Future Awards

Early in the Fall, high school students who compete in their local science fairs for 2021/2022 will be able to submit their photobiology-related project posters (as 5 minute videos) to an ASP Committee (of past-presidents) to compete for one of ten travel awards to our 50th Annual Meeting in Albuquerque. These posters will be judged and three prizes awarded (Gold, Silver, Copper). The winner will present orally at the symposium.

ANY current or new project is eligible for consideration - due dates/deadlines will be announced in the late Fall. The meeting will be held at ASP2022 April 9-12 in Albuquerque NM.

-Frank Gasparro & Albert Girotti

Dr. Tayyaba Hasan wins a lifetime achievement award



We are delighted to report that Dr. Tayyaba Hasan has received a Lifetime Achievement Award from the International Society of Porphyrins and Phthalocyanines (ISPP) for her contributions to biomedical applications of Porphyrins and Phthalocyanines. This Lifetime Achievement Award was presented to her on 7/1/21 at the ICPP-11 (International Conference on Porphyrins and Phthalocyanines) and is sponsored by Roswell

Park Cancer Institute. This award recognizes lifetime achievement for a scientist in the field where it is presented by the ISPP and takes its name from Dr. Thomas J. Dougherty, an international pioneer in photodynamic therapy, who launched the first PDT laboratory at Roswell Park in the 1980s. Thus far, there have been 5 lifetime awards presented for 2020 at ICPP-11, but only one is the Thomas Dougherty Award. There have been only 6 winners of this award prior to Dr. Hasan since the award inception.

<http://www.icpp-spp.org/general/awards.php>

Insight into DNA damage and melanoma

The mutations that give rise to melanoma result from a chemical conversion in DNA fueled by sunlight — not just a DNA copying error as previously believed, reports a study by Van Andel Institute scientists published today in *Science Advances*.

The findings upend long-held beliefs about the mechanisms underlying the disease, reinforce the importance of prevention efforts and offer a path forward for investigating the origins of other cancer types.

“Cancers result from DNA mutations that allow defective cells to survive and invade other tissues. However, in most cases, the source of these mutations is not clear, which complicates development of therapies and prevention methods,” said Gerd Pfeifer, Ph.D., a VAI professor and the study’s corresponding author. “In melanoma, we’ve now shown that damage from sunlight primes the DNA by creating ‘premutations’ that then give way to full mutations during DNA replication.”

Melanoma is a serious type of skin cancer that begins in pigment-producing skin cells. Although

less common than other types of skin cancer, melanoma is more likely to spread and invade other tissues, which significantly reduces patient survival. Previous large-scale sequencing studies have shown that melanoma has the most DNA mutations of any cancer. Like other skin cancers, melanoma is linked to sun exposure, specifically a type of radiation called UVB. Exposure to UVB damages skin cells as well as the DNA within cells.



Most cancers are thought to begin when DNA damage directly causes a mutation that is then copied into subsequent generations of cells during normal cellular replication. In the case of melanoma, however, Pfeifer and his team found a different mechanism that produces disease-causing mutations — the introduction of a chemical base not normally found in DNA that makes it prone to mutation.

DNA comprises four chemical bases that exist in pairs— adenine (A) and thymine (T), and cytosine (C) and guanine (G). Different sequences of these pairs encode all of the instructions for life. In melanoma, the problem occurs when UVB radiation from the sun hits certain sequences of bases — CC, TT, TC and CT — causing them to chemically link together and become unstable. The resulting instability causes a chemical change to cytosine that transforms it into uracil, a chemical base found in the messenger molecule RNA but not in DNA. This change, called a “premutation,” primes the DNA to mutate during

normal cell replication, thereby causing alterations that underlie melanoma.

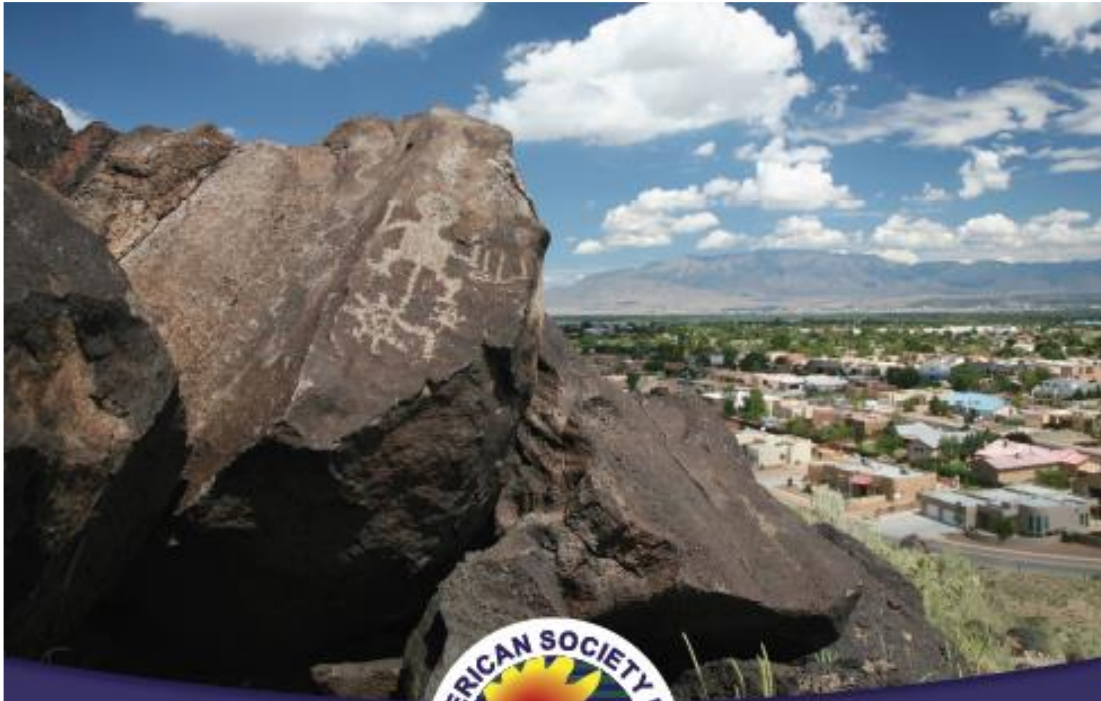
These mutations may not cause disease right away; instead, they may lay dormant for years. They also can accumulate as time goes on and a person's lifetime exposure to sunlight increases, resulting in a tough-to-treat cancer that evades many therapeutic options.

“Safe sun practices are very important. In our study, 10–15 minutes of exposure to UVB light was equivalent to what a person would experience at high noon, and was sufficient to cause premutations,” Pfeifer said. “While our cells have built-in safeguards to repair DNA damage, this process occasionally lets something slip by. Protecting the skin is generally the best bet when it comes to melanoma prevention.”

The findings were made possible using a method developed by Pfeifer's lab called Circle Damage Sequencing, which allows scientists to “break” DNA at each point where damage occurs. They then coax the DNA into circles, which are replicated thousands of times using a technology called PCR. Once they have enough DNA, they

use next-generation sequencing to identify which DNA bases are present at the breaks. Going forward, Pfeifer and colleagues plan to use this powerful technique to investigate other types of DNA damage in different kinds of cancer.

[-Van Andel Institute](#)



SAVE THE DATE

2022 American Society for
Photobiology Biennial Meeting

9-12 April 2022 • Albuquerque, NM