



The SS-ASPB

August 2021

Newsletter of the Southern Section of
the American Society of Plant Biologists

TO ENCOURAGE AND PROMOTE THE GROWTH OF AND THE WELFARE AND
GOOD FELLOWSHIPS OF PLANT BIOLOGISTS GENERALLY...

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Greetings from Dr. Jay Shockey 2020-2021 SS-ASPB Chair

Greetings Southern Section – American Society of
Plant Biologist community!

Thanks to everyone for your continued support,
especially those that virtually attended the 2021
annual SS-ASPB meeting from April 16-18, 2021.
These are very unusual times, but I feel that we
managed to adapt to the circumstances quite well.

The annual meeting this year saw unprecedented levels of registration across an even wider geographic range than usual, including participants from 46 different colleges and universities from 17 different American states, and four foreign countries, due in part to the flexibility and ease of attendance provided by the virtual format. The numbers of registrants (240) and presented abstracts (136) are higher than any I can remember in my 17 years of participation in the SS-ASPB, and probably the highest in the sections' history!

But bigger meetings mean more work to be done to prepare, and this years' meeting would not have been possible without the superhuman efforts of Dr. Mautusi Mitra (University of West Georgia), our Secretary/Treasurer, and Dr. Mustafa Morsy, our Vice-Chair and organizer of the 2021 Kriton Hatzios Symposium. We'd also like to thank Ms. Shoshana Kronfeld, our liaison at national ASPB, for her assistance in setting up registration and other types of online access for abstract submission and uploading of student poster documents. An extra special thanks for the extreme generosity shown by Dr. Morsy's host institution, the University of West Alabama, who provided the full access to Zoom portals necessary for hundreds of attendees, as well as

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expert Information Technology assistance to help us get ready to run the meeting. Their help made a big undertaking much less intimidating.

I would also like to take the opportunity to thank our sponsors: Cotton Incorporated, BASF, Cargill, East Tennessee State University, University of West Alabama, and our parent society, American Society of Plant Biology. Without their financial support, the quality of our meetings, especially our student outreach and competitions, would simply not be the same. We also received generous donations directly from some of the plant biologists that have supported our endeavor now or in the past: Dr. Mustafa Morsy, Dr. Aruna Kilaru, Dr. Kent Chapman, Dr. Julia Frugoli, Dr. Johannes Stratmann, Dr. Henry Daniell and Dr. Mautusi Mitra. Extra thanks to these friends who give, and then give some more!

The 2021 Kriton Hatzios Symposium theme was “Evolution of Signaling Mechanisms in Plants”, complete with a set of incredible presentations that continue our proud tradition of attracting some of the best and most internationally renowned speakers. Please see the other sections of this newsletter for brief biographies of our invited speakers, and short summaries of the results that they presented.

The posts have been set for 2021/2022 for SS-ASPB Chair (Mustafa Morsy), Secretary (Dr. Colleen Doherty, North Carolina State University), National Council Representative (Dr. Nihal Dharmasiri, Texas State University), and the newly created position of Treasurer (Jay Shockey). We’d also like to welcome Dr. Ken Korth (University of Arkansas), our new addition to the SS-ASPB Financial Oversight Committee.

However, sadly, our friend and colleague Mautusi Mitra will be unable to continue ascending in her roles in the Organizing Committee. Therefore, in just the next few weeks or less, we will conduct a special election to fill the position of incoming Vice-Chair. Our friend and colleague, Dr. Ashlee McCaskill (University of North Georgia), has agreed to stand for election; any other interested parties should contact me immediately (Jay.Shockey@usda.gov) for inclusion on the ballot. Write-ins are always welcome too. Please keep an eye open for the email announcement for the election and plan to vote!

And finally, we hope to see you all at the 2022 annual meeting, which will be held in Birmingham, AL. Announcements soon to follow. Hope to see you all there!

2021 SS-ASPB Sponsors



2021 SS-ASPB Award Winners

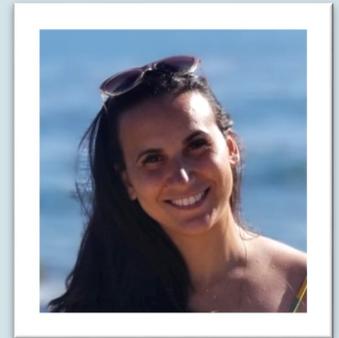
As always, the high points of every SS-ASPB meeting are the student competitions. Thanks to all of the students who participated, and we hope to see many of you again next year! Thanks to all of the judges who volunteered their time to carry out what has become an increasingly tough task: trying to separate the dozens of excellent talks and posters into just three prize winners for each category.

Cotton Incorporated Graduate Oral Competition

1st Place (winner of the first annual Marc Cohn Award, given to the top prize in the Cotton Incorporated Graduate Student competition): **Borja Barbero**, Texas A&M University, for his presentation “PROTECTION OF TELOMERES 1b protects against telomere oxidation in *Arabidopsis thaliana*”



2nd Place: **Thiara Bento**, Florida Institute of Technology, for her presentation “Metabolic signatures of kin recognition in a model plant”.



3rd Place: **Kirstin Cutshaw**, Florida International University, for her presentation “Quorum Sensing in *Chlamydomonas reinhardtii*”.



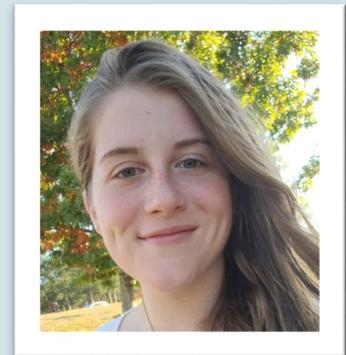
2021 SS-ASPB Award Winners

Aubrey Naylor Memorial Undergraduate Poster Competition

1st Place: **Lauren Smith**, Spelman College, for her poster presentation “Gene expression analysis reveals an important role for the ABC transporter WBC19 in Cu transport”.



2nd Place: **Angela Plemmons**, University of South Carolina, for her poster presentation “Tissue culture treatment of wheat to induce mobilization of an mPing based activation tag.”.



3rd Place: **Cynthia Montanez**, Florida Institute of Technology, for her poster presentation “Bioremediation of Mars regolith simulants with cyanobacteria *Anabaena cylindrica*”.



2021 Kriton Hatzios Symposium

Evolution of Signaling Mechanisms in Plants

Hosted by Dr. Mustafa Morsy, SS-ASPB Vice-Chair

The 2019 Kriton Hatzios Symposium on “Evolution of Signaling Mechanisms in Plants” was hosted by Dr. Mustafa Morsy, vice-chair of the section. Every year, the host of this symposium selects the theme and invites leading scientists to address the topic. The symposium honors the memory of Dr. Kriton Hatzios (1950-2003), who served as the Head of the Virginia Agricultural Experiment Station, and Associate Dean for Research at Virginia Tech College of Agriculture and Life Sciences.

We had four internationally renowned speakers whose research centers on the evolution of signaling mechanisms in plants. A common theme in these talks was the similarity between signaling mechanisms in plants and other systems like yeast and humans. In addition, these talks highlighted the importance of collaborative and multidisciplinary approaches to young plant biologists. A summary of each speakers' presentation is provided hereafter.

Dr. Jennifer L. Nemhauser

University of Washington

Using every tool in the kit: a story of diversification enabling innovation

Jennifer's lab focuses on understanding variation and the evolution of protein function using the Auxin signaling pathway. Jennifer presented two different studies, one focused on SINPS in auxin receptors and the second focused on functional analyses of the corepressor TPL (a highly conserved gene). The auxin receptors SINPS had an impact on the individual gene and the whole organism. Comparative studies between Arabidopsis and maize showed many similarities, indicating conservation. This is an exciting step towards understanding the evolution of these protein functions. TPL's N-terminus interacted with various proteins that are critical for the repression of auxin target genes. Studies of TPL paralogs, promoters, and interactions in other species will lead to a better understanding of the evolution of these genes. Jennifer concluded that diversification is happening at the level of individual genes, but the selection forces are happening in the context of the whole network. Jennifer also provided a useful overview of efforts being made to create a better plant sciences community and mentioned many valuable resources for plant biologists.

Dr. Alan M. Jones

The University of North Carolina at Chapel Hill

The Evolution of G Signaling

Alan discussed the evolution of the G-proteins pathway by comparing critical differences between animals and plants. Alan showed that animals use activation, and plants use de-repression to regulate the active state of G-proteins. In addition, animals use GPCRs while plants use receptor kinases to regulate the active state. G- α 1 from humans and AtGPA1 Arabidopsis have very similar 3D structures indicating evolutionary constraints.

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2021 Kriton Hatzios Symposium, cont.

Swapping the G- α helical domain between animal and plant changed the properties of each of these proteins completely, meaning that entire properties are encoded in the helical domain. Alan believes that the ancestral state of the G signaling rate-limiting step is hydrolysis from which the exchange-derived trait was evolved. Both animals and plants evolved a phosphorylation base code as a regulatory mechanism. In animals, phosphorylation leads to desensitization, like acclimation to drugs or light. While in plants is the opposite, phosphorylation causes activation. This mechanism may indicate an adaptive evolution in which receptors have evolved to adapt to fast exchangers.

Dr. Simon Gilroy

The University of Wisconsin-Madison.

Do plants feel pain? Stress signaling in Arabidopsis

Simon posed a fascinating question as in the title. His lab used a GFP-based imaging tool based on a calcium sensor called GcamP. In this system, brighter GFP indicates increased calcium levels (a universal second messenger). Simon showed quite a few interesting real-time GFP movies of plants in response to various stimulate, particularly wounds. Mechanical or herbivory damages triggered localized or systemic calcium signals. The calcium signals activated systemic defense response genes, i.e., Jasmonate pathway. Simon showed that the systemic response of calcium signaling has two features, a rapid spread through the phloem and a slow spread via plasmodesmata. Calcium and the systemic response were regulated by Glutamate-like receptor channels similar to mammalian ones that transmit information from nerve to nerve. Simon's data suggests that plants have similar machinery to mammalian nerve signal transduction. Despite lacking a nervous system, plants employ a rapid, plant-wide signaling system that helps integrate responses across the plant body.

Dr. Pradeep Kachroo

University of Kentucky

Chemical signaling in plant defense

Pradeep presented the concept of Systemic Acquired Resistance (SAR). SAR signaling requires two parallel branches, one regulated by salicylic acid (SA), and the other by pipelicolic acid (Pip), azelaic acid (AZA) and glycerol-3-phosphate (G3P). His lab studies the role and relationship effect of these chemicals on the SAR. He showed that the AZA and G3P function downstream of the free radicals nitric oxide (NO) and reactive oxygen species (ROS) and Pip functions by increasing NO/ROS levels. During SAR, SA, Pip, AZA, and G3P accumulate in the infected leaves, but only a small portion of these is transported to distal uninfected leaves. SA is preferentially transported via the apoplast, whereas phloem loading of AZA and G3P occurs via the symplast. Pradeep discussed the acidity associated with aspirin use in humans and the uptake of the SA in plants, and the role of the deprotonation process.

2022 SS-ASPB

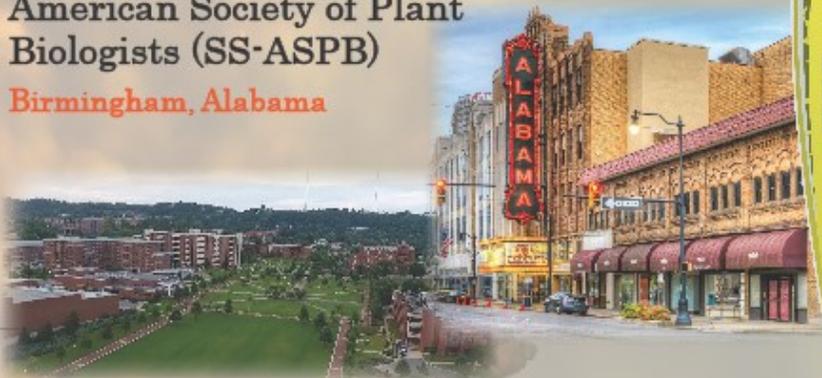
SAVE THE DATE

Greetings plant biologists!

Mark your calendar and plan to join us for the

2022 Southern Section of the
American Society of Plant
Biologists (SS-ASPB)

Birmingham, Alabama



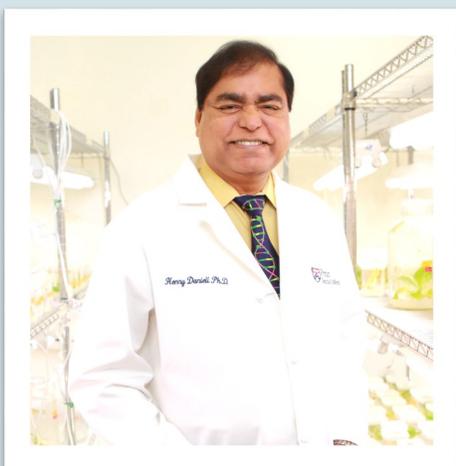
The meeting will take place on March 26-28, 2021 and feature an outstanding lineup of speakers for the Kriton Hatzios Symposium "Plant Microbiome: Ecology, functions, and application trends".

- Papers covering all topics in plant biology are encouraged
- Student competition at the graduate and undergraduate levels
- Travel grants to support student attendance

FOR MORE INFORMATION, VISIT
<https://southern.aspb.org/>

or email Dr. Colleen Doherty
SS-ASPB Secretary at cjdoherty@ncsu.edu

Birmingham is conveniently located within driving distance of many schools and the meeting site is about 10 minutes from the airport.



Henry Daniell International Scholar Award (HD ISA)

The SS-ASPB developed the Henry Daniel International Scholar Award to support international plant biologists. Dr. Henry Daniell financially supports the award. Dr. Daniell is an international plant biologist who pioneered the chloroplast genetic engineering concept to produce and orally deliver biopharmaceuticals to treat major metabolic or genetic disorders.

The HD ISA is a one-time, competitive, merit-based award intended to recognize international outstanding plant biologists on both the graduate and postdoctoral levels. The HD ISA award provides partial support to attend and present at the SS-ASPB annual meeting to one postdoc and one graduate student.

HD ISA Scholars should demonstrate their ability to make a positive contribution to plant biology, which can be shown by scientific research publications and presentations and assumed leadership in the field.

Nominations

A nomination (self-nomination is accepted) of a graduate student or postdoc should include the following items:

- 1-2 page letter of nomination in which the nominee's qualifications are listed
- A curriculum vitae or resume, or a short description of the nominee that includes information such as education, positions held, accomplishments, previous honors or awards, past service to the profession, and a list of key publications/patents where appropriate.

Eligibility

To earn this award, nominees must meet the following criteria:

- Be born outside the United States and a non-US permanent resident
- Maintain membership in the SS-ASPB
- Be affiliated with a state within the SS-ASPB service area
- No more than five years as a graduate student or postdoc

Recognition

Award recipients will be recognized annually during the section's meeting and will receive the following:

- A commemorative award certificate
- \$300 check
- Acknowledgment on the Section's website, meeting booklet, and newsletter
- An annual meeting ribbon

Deadline

All nominations must be submitted electronically. Please submit your nomination as a single PDF file to SouthernsectionASPB@gmail.com.



A Tribute to Dr. Marc Cohn

By Dr. Mustafa Morsy

On behalf of the SS-ASPB leadership and all the Section members, we publicly honor Dr. Marc Cohn, who passed away in June 2021. Stretching back more than 30 years, Dr. Cohn contributed to the success of the Southern section of ASPB in numerous ways, including as an organizer, presenter, and student mentor. He also helped to ensure our ability to put on great meetings in interesting cities through his tireless efforts as Chair of the SS-ASPB financial oversight committee for many years. Many of us have known him since we were graduate students or during early career, either as a faculty member at LSU, as part of the Southern section, or both. The interactions with Marc were always pleasant. In SS-ASPB, Marc was someone who made everyone feel welcomed as a part of the SS-ASPB family. I met Marc for the first time as a graduate student presenting my first poster twenty years ago in the Section's meeting in Denton, TX. He came to my poster, introduced himself, listened, discussed, and delightfully advised me on how to make my poster better. The interaction and encouragement from Marc made me want to stay with the Section. Over the years, I have seen him doing the same with my students, who also loved Dr. Jazz, as he was known for his Gifts & Messages radio show. Last year, the section named the first place of graduate student competition after Dr. Cohn. Marc was pleased to know that, and we were glad that we honored him while he was with us. Dr. Cohn leaves behind a legacy of a well-respected colleague, scientist, and educator. He will always be admired for his persistent commitment and exceptional contributions to the SS-ASPB.

If you wish to honor Dr. Cohn's legacy with a contribution to support him as a Pioneer of ASPB, please get in touch with Dr. Kent Chapman (Kent.Chapman@unt.edu) or Dr. Nihal Dharmasiri, (nihal@txstate.edu).

To learn more about Dr. Cohn, please read the excerpt below from the LSU Department of Plant Pathology and Crop Physiology newsletter released when he retired in 2017. The full article is available at https://www.lsu.edu/agriculture/plant/files/PPCPNews_January2017.pdf.

As a long-time member of SS-ASPB leadership, Dr. Cohn has served on many organizing committees and as an officer, including as Chair in 1990-1991. Currently, he is a key member of the Financial Oversight Committee. In that role, Dr. Cohn oversees the long-term care of SS-APSB funds, and provides detailed review of annual budget reports. Those who have served as Treasurer of the Southern Section have learned that some of the sweetest words in the English language can be "your report is now Cohn-approved". Some years ago, Dr. Cohn was instrumental in working with other SS-ASPB leadership to take our section from having essentially zero capital to what is now a very healthy funding base. His contributions to the Society were recognized with the SS-ASPB Distinguished Service Award in 2001.

Dr. Cohn is a world authority on weed seed dormancy and recalcitrant seed biology. At LSU, he taught
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two courses annually: Seed Physiology and Professional Development for Plant Scientists. The latter course provided time-tested strategies for conducting successful research: how to formulate a good question; how to find background information related to your research; how to stay current with the literature; how to create a logical series of experiments; how to construct a manuscript/talk/poster; how to evaluate what you read; how to edit and/or review a manuscript; and how to integrate your findings into the flow of science.

Dr. Cohn's research and professional service formed his award-winning teaching approach. For 10 years he served as editor-in-chief of *Seed Science Research*. He was the recipient of the prestigious Seed Science Award in 2006 from the Crop Science Society of America, the Tipton Award in 2007 for team research from the LSU AgCenter, LSU's Sedberry Award for Graduate Student Teaching & Mentoring in 2009, an Alumni Association Excellence in Teaching Award from the College of Agriculture in 2011, the College of Agriculture Teacher of the Year for 2011-12 and Tiger Athletic Foundation President's Award for Distinguished Teaching in 2015.

Dr. Cohn has published over 100 research papers, book chapters and scientific abstracts, and was a recipient or co-recipient of grants funded for more than \$5 million. He is a member of the Weed Science Society of America, Crop Science Society of America, the Association of Official Seed Analysts, a life member of the American Society of Plant Biologists and a charter member of the International Seed Science Society.

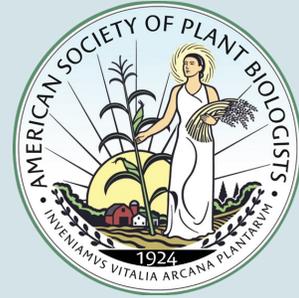
In retirement as an Emeritus/Adjunct Professor, Dr. Cohn will continue to offer his Professional Development course, write scholarly articles and be available for student consultations. Dr. Cohn is also known to some as Dr. Jazz, and his "Gifts & Messages" radio show will continue to air each week on WHYR-FM in Baton Rouge and as a syndicated show on many Pacifica Radio Network (<http://pacificanetwork.org/>) stations in the United States. Many of the show archives are also available at www.mixcloud.com/drjazz. Advance warning: his saxophones are out of the closet and could appear publically at any time in the future.

2021 SS-ASPB Special Election

A special election for the position of 2021-2022 Vice-Chair will be happening shortly. Ballots will be sent out via email, so keep an eye on your inbox! Thus far, Dr. Ashlee McCaskill is on the ballot for this position. She is a professor at the University of North Georgia. Most recently, she served as the SS-ASPB representative to both the ASPB Council and ASPB Membership Committee.

We're on the web!

<https://southern.aspb.org/>



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