

Mixtures Specialty Section

A mixture of business, social and news

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From the President

Dear SOT Mixtures Specialty Section (Mix SS) members,

Hope you had a nice summer and are doing well! I cannot believe it's fall already, and we are getting ready for the SOT 2022 Annual Meeting. I am staying hopeful that we will meet in-person after 2 years at SOT 2022 in San Diego!

In 2020-2021, we adapted to new ways of working to cope with the pandemic. With SOT 2021 Annual Meeting going virtual, MixSS hosted its reception virtually as well. It was great to see you all (virtually) and get your inputs on topics of interest related to mixtures for future scientific sessions, CE courses, and webinars. Based on your feedback, MixSS Executive Committee shortlisted topics for potential proposals for SOT 2022. MixSS is excited to collaborate with Exposures SS on a CE course titled "How Advances in Exposure Science and Toxicology Are Changing Assessments of the Effects of Chemical Mixtures on Human Health" which has been accepted for presentation at SOT 2022 Annual Meeting. Thanks to our Vice President, Dr. Paul Price, for co-developing the course with Dr. Elke Jensen of the Exposures SS. For more details on Mix SS endorsed...

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...sessions and CE courses at SOT 2022, please see page 7.

To keep the momentum going, MixSS recently co-hosted a webinar with Risk Assessment Specialty Section in early September where one of our top 5 abstract winners for 2021, Dr. Jacklyn Kelty, presented her work on “The Missing Link: Ex Vivo E-Cigarette Toxicity Modeling”. Video recording of the webinar can be found [here](#) . Congratulations to all the 2021 MixSS award winners! Please see the winner biosketches to learn more about the award winners and their research. Also, we encourage graduate students, early career scientists, and post docs to apply for MixSS awards for 2022.

This year, MixSS formed some new committees i.e., Communications, Webinars, Membership, and Fundraising Committee. If you interested in joining any our existing committees or new committees, please fill out [this survey](#) by COB October 31st.

We are thrilled to share that our newly formed Communications Committee has recently launched [MixSS LinkedIn Page](#) to share updates related to MixSS and stay connected with our current members and new potential members through LinkedIn. Thanks to Brianna Rivera, co-chair of Communications Committee for leading the development and launch of MixSS LinkedIn page. We encourage you all to follow MixSS LinkedIn page to stay update to on MixSS events.

As we get ready for 2022, we will be requesting for nominations for different MixSS officer positions. If you are interested in running for an officer position or would like to nominate someone, please reach out to the chair of Nominations Committee, Dr. Tom Webster.

Thanks to current and new members for continued support, MixSS is continuing to grow from strength to strength. If you have any thoughts and suggestions to help improve our specialty section or would like to share your scientific and career achievements, please feel free to contact any of the officers or me.

Sincerely,

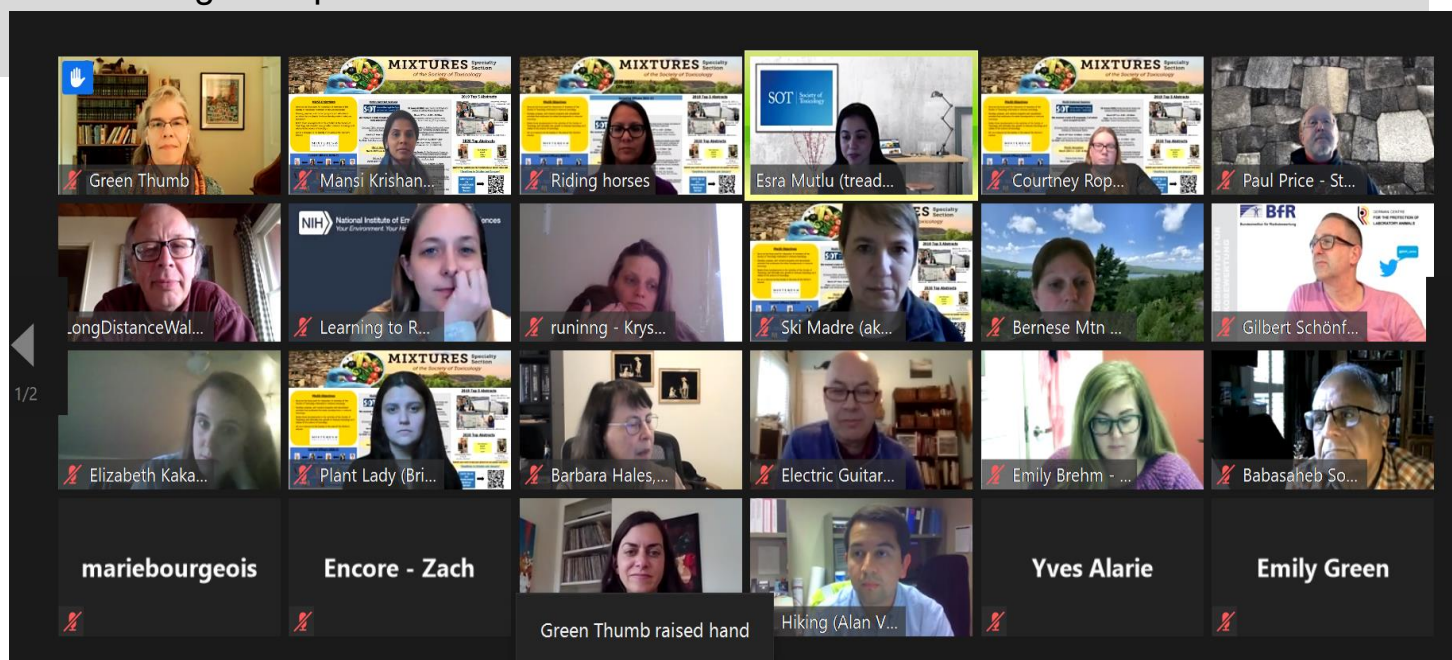
Mansi Krishan, PhD, ERT

President, MixSS (2021-2022)

SOT 2021 Annual Meeting Recap

This year the 2021 Annual SOT Meeting was again held virtually. While many of us long for the days of browsing oversized posters in a giant exhibit hall while sipping lukewarm coffee and collecting ink pens for our vendor tote bags, the meeting and Mixtures Specialty Section Reception was a success! The MixSS reception was well-attended with over 50 participants. The proceedings began like in previous years with a budget and membership update and announcing the award winners (see pg 5). To encourage full engagement of the participants in the “mingling” portion of the reception, attendees were split into virtual breakout rooms led by our very own MixSS Officers (pg 6). The goal of these breakout/listening sessions were to give the SS leadership feedback on where the future of mixtures is going/should go in order to guide future MixSS endorsed SOT sessions and Continuing Education Courses. While topics like nonchemical stressors, AOPs, and PFAS were often mentioned, the following feedback was offered by members and was consistent across all breakout rooms.

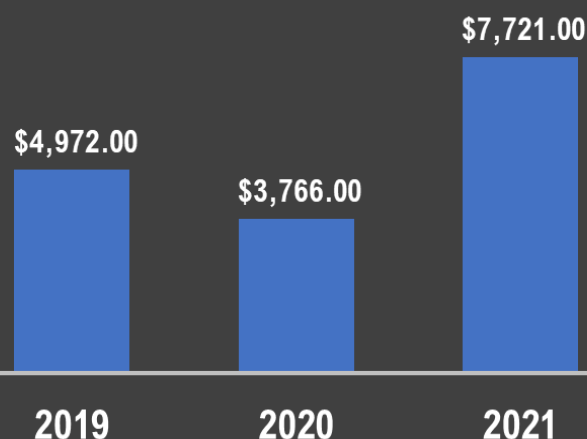
- MixSS endorsed sessions should be interdisciplinary, (i.e., include exposure, ADME, *in vivo* models and NAMS)
- Principles for determining toxicity and risk of mixtures exposures have not been completely defined yet
- How can toxicology and risk assessment advancements can be applied to combined exposures?
- Members are eager for practical solutions



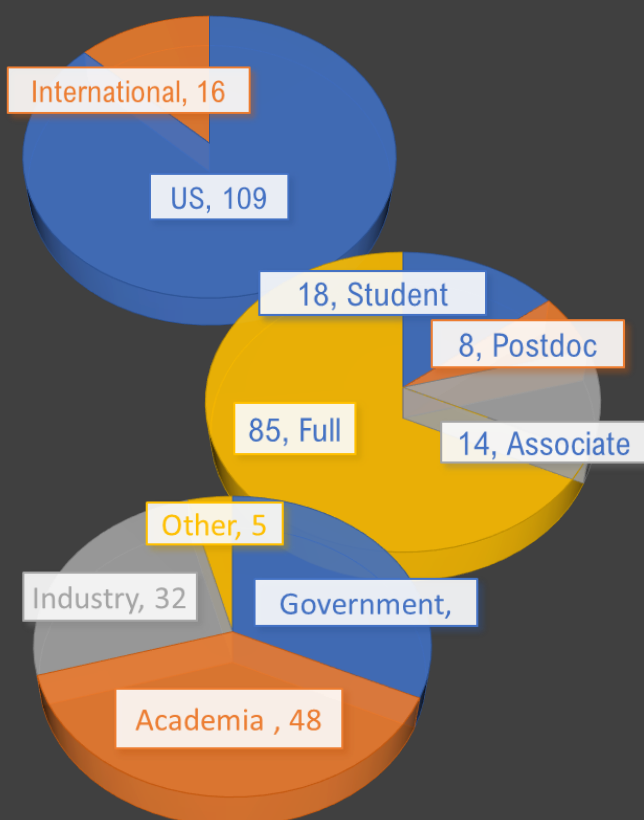
Recap cont'd

MixSS Stats

Budget



Membership Breakdown



Top Overall Mixtures Abstracts for SOT 2021

1. A Novel Framework to Form Sufficiently Similar Mixtures from Environmental Exposure Data. **Brianna Rivera**
2. Dose Additive Developmental Toxicity of a Mixture of Three PFAS (HFPO-DA, NBP2, PFOS) in the Sprague-Dawley Rat. **Justin Conley**
3. Addressing the Activity of Binary and Complex Environmental Polychlorinated Biphenyl Mixtures toward the Dopamine Transporter. **Justin Griffin**
4. Pulmonary Tissue Dysfunction and Cytotoxicity in Precision-Cut Lung Slices Exposed to E-cigarette Condensate. **Jacklyn Kelty**
5. Flavor Ingredients in E-vapor Products: A Structure-Based Grouping Approach to Predict Their Biological Activity. **Davide Sciuscio**

MixSS Endorsed 2021 SOT Sessions

Symposium: *It Is Not Just Air: Exposure to Indoor Air Pollution, Diagnostic Tools, and Evaluation of Health Effects*

Botanical Mixtures: Predictive Approaches to Evaluating Pregnancy, and Reproductive and Developmental Health

Continuing Education Course: *Insider Secrets for Design and Analysis of Defined-Mixture Experiments*

Workshop Sessions: *Tackling the Potential Human Health Impacts of Microplastics and Nano plastics: Challenges for Toxicologists in the Assessment of Real-World Mixtures*

The Community Exposome: Effects of Environmental Contamination on Health Disparities and Marginalized Populations through the Lens of a Toxicologist

2021 SOT Award Winners

Best Abstract: Brianna Rivera

Oregon State University, PhD Candidate

A Novel Framework to Form Sufficiently Similar Mixtures from Environmental Exposure Data

It was such an honor to have been awarded Mixtures Specialty Section's Best Abstract Award this year! Due to this recognition, I received a significant amount of traffic at my virtual poster presentation. Individuals from various sectors and levels in their career stopped by and we had great conversations about my research and broader applications to mixtures toxicology. I also received some very insightful and helpful feedback and suggestions regarding future directions of my research project. Thank you, Mixtures Specialty Section, for this wonderful opportunity!



Post-Graduate: Emily Green

USEPA, ORISE Post-Graduate Fellow

Application of the Generalized Concentration Addition Model to Predict In Vitro Responses of Tertiary Mixtures of Glucocorticoid Ligands

Recently graduating from the University of Miami and starting a post-baccalaureate research fellowship with the EPA, this was my first opportunity to present my research at an annual SOT meeting. Even though things looked different on a virtual platform this year, I enjoyed presenting my research and networking with others through events like the MixturesSS reception. These events gave me the opportunity to receive helpful feedback, suggestions, and ideas that contributed to my current research. I hope to continue investigating pressing questions and topics in the field of mixtures toxicology as I begin pursuing my PhD this fall through Duke University's Integrated Toxicology and Environmental Health Program.



Post-Graduate: Dr. Emily Brehm

University of Illinois, PhD Candidate

Perinatal exposure to an environmentally relevant phthalate mixture accelerates biomarkers of reproductive aging in a multigenerational and transgenerational manner in female mice.

Dr. Emily Brehm recently obtained her PhD in Reproductive Toxicology from the University of Illinois at Urbana-Champaign in 2021, while studying under Dr. Jodi Flaws. Dr. Brehm's doctoral research examined how exposure to endocrine-disrupting chemicals can affect the ovary and overall female fertility, specifically how prenatal exposure to phthalates may accelerate reproductive aging in multiple generations of female mice. Dr. Brehm is currently at Veterinary Research Specialist at University of Illinois Urbana-Champaign



2021-22 MixSS Officers



Past President:
Thomas Webster



President:
Mansi Krishan



Vice President:
Paul S. Price



Vice President-Elect:
Esra Mutlu



Secretary/Treasurer:
Jennifer Schlezinger



Senior Councilor:
Courtney Roper



PDA Rep:
Elizabeth Kakaley

Welcome Incoming Officers



Junior Councilor: Justin Conley

Dr. Conley is a Reproductive Systems Biologist at the US Environmental Protection Agency, where he currently conducts research on the developmental toxicity of exposure to emerging PFAS and PFAS mixtures during pregnancy, as well as the reproductive toxicity of endocrine disrupting chemicals and mixtures that alter androgen signaling in utero. He received his doctorate in Environmental Toxicology from NC State University in 2014 and was a postdoctoral fellow at US EPA from 2014-2019. He has authored or coauthored 22 peer-reviewed publications and 2 book chapters. Dr. Conley previously served as the postdoctoral representative of the Mixtures Specialty Section from 2016-2018.



GSLC Rep: Brianna Rivera

Brianna Rivera is a fourth-year doctoral candidate in the department of Environmental and Molecular Toxicology at Oregon State University. She is currently working in the labs of Drs. Kim Anderson and Susan Tilton. Her research focuses on identifying and characterizing hazard of chemical mixtures. Brianna investigates sources of environmental contaminants and their potential impacts on human and animal health through sampling of indoor/outdoor air and well water. She is also developing experimental methods to form representative and sufficiently similar mixtures from environmental exposure data to characterize hazard of mixtures using bioassays.

Looking Ahead: SOT 2022

Proposal Review Process

In late April, the MixSS Program sub-committee began pre-review for SOT 2022 session proposals. During this initial round of review, the sub-committee was able to provide feedback to strengthen several “pre-proposals,” as well as offer advice on potential speakers for various topics, etc. After SOT’s session proposal deadline on May 17th 2021, the sub-committee received a total of six proposals that included a Continuing Education course, workshops and symposiums. Each proposal was reviewed and following [SOT's guidance](#), by at least five sub-committee members and was scored based on 1) how well the session was developed, 2) if the speakers’ professional perspective was balanced, 3) scope, 4) relevancy to mixtures and 5) whether the session was timely and not redundant to past sessions.

MixSS Endorsed SOT 2022 Sessions

After the Program sub-committee submitted their preferences for Annual SOT sessions endorsed by MixSS, SOT has accepted the following as MixSS endorsed sessions:

CE Course: Sunday March 27th 2022

- How advances in exposure science and toxicology are changing assessments of the effects of chemical mixtures on human health

Symposia:

- A Holistic View on the Impacts of Climate Change
- PFAS sum vs some? Science and Policy of Mixtures

Workshop:

- This is Your Brain on Mixtures: Neurodevelopmental Effects of Combined Exposures



Recent and Upcoming Webinars

The first webinar of Fall 2021 kicked off with a co-hosted event with the Risk Assessment Specialty Section (RASS) featuring a presentation by Dr. Jacklyn “Skye” Kelty. Dr. Kelty is a Postdoctoral Fellow at Rutgers University and presented a talk entitled *The Missing Link: Ex vivo e-Cigarette Toxicity Modeling*. Dr. Kelty discussed human precision cut lung slices and their use in toxicity testing of e-cigarette condensates. On January 12th 2022, 3pm ET our 2021 SOT *Overall Best Abstract Winner* and MixSS GSLC Rep, Brianna Rivera, from Oregon State University will be presenting at the next RASS co-hosted webinar.

Access Dr. Kelty’s presentation and other past MixSS webinars [here](#).



Important Upcoming Dates

- [SOT San Diego 2022](#): March 27-31, 2022
- Abstract submission: August 16-December 1, 2021
- Registration and Housing opened August 2, 2021
- SOT Awards deadline: October 9, 2021
- Mixtures SS [Best Overall and Best Student/Postdoc Awards](#)
Deadline: January 31, 2022

WE WANT TO HEAR FROM YOU!

Want to get involved in the Mixtures Specialty Section but unsure where to start? Follow the link to take our involvement survey and one of our officers will follow up with ways to get involved that best for your skill set.

[TAKE THE SURVEY](#)



Are you on LinkedIn? Now we are too! Connect with the Mixtures Specialty Section on LinkedIn to stay up to date on Specialty Section announcements, SOT Annual Meeting deadlines, and upcoming webinars.

[MixSS LinkedIn Page](#)

HELP US RECRUIT EMERGING TOXICOLOGISTS!

SOT ToxScholar program supports presentations to increase awareness of toxicology as a science and as a career field.

At institutions that are

- Primarily undergraduate
- With a high proportion of undergraduates from underrepresented groups
- In developing countries



We need YOU to be a ToxScholar. [Apply for funding.](#)

Faculty United for Toxicology Undergraduate Recruitment and Education (FUTURE) Committee