

NAME OF SPECIALTY SECTION Mixtures Specialty Section

## **ANNUAL REPORT: 2010-2011**

May 1, 2010 to April 30, 2011

### **I. Officers/Committees:**

<u>Officers</u>	<u>2009-2010</u>	<u>2010-2011</u>
President:	Kannan Krishnan	Michael Dourson
Vice President:	Michael Dourson	Kendall Wallace
Vice President-Elect:	Kendall Wallace	David Mattie
Secretary-Treasurer:	David Mattie	Cynthia Rider
Councilors:	Bruce Fowler	Paul Price
	Paul Price	Ken Sexton
<i>Past-President</i>	Jane Ellen Simmons	Kannan Krishnan
SAC Representative:	Ronald Pringle	David Szabo/Julia Rager
PDA Representative:	Cynthia Rider	Xianglu Han

### **II. Activities:**

**2011 SOT Annual Meeting Reception** was held from 6:00-7:30 on March 9, 2011 in Room 140A at the Convention Center in Washington, DC on 3/9/2011.

Approximately 75 people were in attendance.

Dr. Kannan Krishnan called the meeting to order at 6:00 PM on 3/9/2011.

Business Meeting Speaker: NIEHS Representatives Claudia Thompson, Danielle Carlin, Mike DeVito, and Cynthia Rider

Meeting Minutes:

- Hors d'oeuvres and networking
- Kannan Krishnan welcomed everyone and provided an update on recent MSS activities.
- David Mattie provided the financial statement.
- Cynthia Rider discussed the Newsletter and requested input from members.
- Kendall Wallace announced the top 11 mixtures abstracts. Ken presented a plaque to the winner of the best abstract award and Wiley representative Martin Rothlisberger presented plaques and checks for the best graduate student award, and the best postdoctoral award.
- Michael Dourson gave incoming president remarks encouraging members to be active in the scientific community and engage in activities such as reviewing mixtures-related papers, etc. Michael discussed SOT 2012 session proposals that MSS would like to develop and requested ideas from the attendees on other potential submissions. Michael presented a plaque of appreciation to outgoing president Kannan Krishnan.
- Scientific program: Representatives from NIEHS discussed an upcoming Request for Information on Mixtures that will inform an NIEHS Mixtures Workshop to be held in the fall of 2011.

**Awards:**

Best Mixtures Abstract: Johnathan Boyd (West Virginia University) - plaque

Graduate Student Award: Julia Rager (UNC Chapel Hill) – plaque, certificate and \$500 from Wiley

Post doctoral Award: Suzane Ramos da Silva (Sao Paulo State University Medical School) –

plaque, certificate and \$500

Top 11 abstracts (listed below) were awarded blue ribbons during their poster presentations:

Modeling mixtures of environmental estrogens detected in U.S. surface waters with an in vitro estrogen mediated transcriptional activation assay (T47D-KBluc)

D.S. Bermudez<sup>1</sup>, L.E. Gray<sup>2</sup>, and V.S. Wilson<sup>2</sup>

<sup>1</sup> Molecular Biomedical Sciences, NCSU, Raleigh, NC, United States

<sup>2</sup> Reproductive Toxicology Branch, US EPA, Research Triangle Park, NC, United States

Time: Wed. March 9, 1:00-4:30, poster board 501

Determining a Robust D-Optimal Design for Testing for Departure from Additivity in a Mixture of Four PFAAs

Caroline Carr<sup>1</sup>, Chris Gennings<sup>1</sup>, Barbara D. Abbott<sup>2</sup>, Judy E. Schmid<sup>2</sup>, Wen Wan<sup>1</sup>, Lyle Burgoon<sup>2</sup>, Cynthia J. Wolf<sup>2</sup>, Christopher Lau<sup>2</sup>

<sup>1</sup> Biostatistics, Virginia Commonwealth University, Richmond, VA, United States

<sup>2</sup> NHEERL, U.S. EPA, Research Triangle Park, NC, United States

Time: Wed. March 9, 1:00-4:30, poster board 504

Physiologically-based pharmacokinetic (PBPK) modeling of two binary mixtures: metabolic activation of carbon tetrachloride by trichloroethylene and metabolic inhibition of chloroform by trichloroethylene

Marina V. Evans<sup>1</sup>, Hui M. Yang<sup>2</sup>, Karen A. Yokley<sup>3</sup>, Anthony McDonald<sup>1</sup>, Y. M. Sey<sup>1</sup>, C. R. Eklund<sup>1</sup>, Jane Ellen Simmons<sup>1</sup>

<sup>1</sup> NHEERL/ORD, U.S. EPA, Research Triangle Park, NC, United States

<sup>2</sup> NCEA/ORD, U.S. EPA, Washington, DC, United States

<sup>3</sup> Mathematics and Statistics, Elon University, Elon, NC, United States

Time: Wed. March 9, 1:00-4:30, poster board 505

Integrated Multi-disciplinary Assessment of Environmentally Realistic Complex Mixtures of Drinking Water Disinfection By-Products (DBPs) (The 4Lab Study)

Jane Ellen Simmons<sup>1</sup>, M. G. Narotsky<sup>1</sup>, L. K. Teuschler<sup>2</sup>, J. G. Pressman<sup>3</sup>, E. S. Hunter<sup>1</sup>, G. E. Rice<sup>2</sup>, G. R. Klinefelter<sup>1</sup>, J. M. Goldman<sup>1</sup>, T. F. Speth<sup>3</sup>, L. F. Strader<sup>1</sup>, R. J. Miltner<sup>3</sup>, S. Parvez<sup>2</sup>, A. McDonald<sup>1</sup>, D. S. Best<sup>1</sup>, C. A. Dingus<sup>4</sup>, S. D. Richardson<sup>5</sup>

<sup>1</sup> NHEERL/ORD, U.S. EPA, Research Triangle Park, NC, United States

<sup>2</sup> NCEAORD, U.S. EPA, Cincinnati, OH, United States

<sup>3</sup> NRMRL/ORD, U.S. EPA, Cincinnati, OH, United States

<sup>4</sup> Battelle, Columbus, OH, United States

<sup>5</sup> NERL/ORD, U.S. EPA, Athens, GA, United States

Time: Wed. March 9, 1:00-4:30, poster board 506

The Maximum Cumulative Ratio (MCR): A Tool for Assessing the Need for Cumulative Risk Assessments

Xianglu Han<sup>1</sup>, Paul S. Price<sup>1</sup>

<sup>1</sup> Toxicology & Environmental Research & Consulting, The Dow Chemical Company, Midland, MI, United States

Time: Tues. March 8, 1:00-4:30, poster board 640

#### Particle Uptake of Gaseous Air Toxics Modifies Observed Toxicity of PM

Seth M. Ebersviller<sup>1</sup>, Kim Lichtveld<sup>1</sup>, Jose Zavala<sup>1</sup>, Ying-Hsuan Lin<sup>1</sup>, Ken G. Sexton<sup>1</sup>, Ilona Jaspers<sup>1,2</sup>, Harvey Jeffries<sup>1</sup>

<sup>1</sup> Environ. Sci. and Engineering, UNC-CH, Chapel Hill, NC, United States

<sup>2</sup> CEMALB, UNC-CH, Chapel Hill, NC, United States

Time: Wed. March 9, 1:00-4:30, poster board 531

#### A computational framework for cumulative risk assessment

Dimosthenis A. Sarigiannis<sup>1,2</sup>, Alberto Gotti<sup>3</sup>, Spyros Karakitsios<sup>1</sup>

<sup>1</sup> Institute for Health and Consumer Protection, European Commission - Joint Research Centre, Ispra, Varese, Italy

<sup>2</sup> Chemical Engineering Dept, Aristotle University of Thessaloniki, Thessaloniki, Greece

<sup>3</sup> CPERI, CERTH, Thermi, Greece

Time: Tues. March 8, 1:00-4:30, poster board 642

#### Effects of an asymmetry parameter on curve-fitting for single chemical and mixture concentration-response

data: 3) Mono-halogenated acetonitriles and ethyl acetates

Douglas A. Dawson<sup>1</sup>, Gerald Pöch<sup>2</sup>, Terry W. Schultz<sup>3</sup>

<sup>1</sup> Biology/Toxicology, Ashland University, Ashland, OH, United States

<sup>2</sup> Pharmacology and Toxicology, University of Graz, Graz, Austria

<sup>3</sup> Comparative Medicine, College of Veterinary Medicine, The University of Tennessee, Knoxville, TN, United States

Time: Mon. March 7, 1:00-4:30, poster board 246

#### Cell Signal Transduction to Predict Mixture Interactions

Jonathan Boyd<sup>1</sup>, Xueli Gao<sup>1</sup>, Holly Williams<sup>1</sup>, Catherine Kinzer<sup>1</sup>, Julie Vrana<sup>1</sup>

<sup>1</sup> Bennett Department of Chemistry, West Virginia University, Morgantown, WV, United States

Time: Wed. March 9, 1:00-4:30, poster board 512

#### PBPK modeling of the aggregate and cumulative exposures of rats to toluene, n-hexane, cyclohexane, and Isooctane

Nazanin Kaveh<sup>1</sup>, Michelle Gagné<sup>1</sup>, Ginette Charest-Tardif<sup>1</sup>, Robert Tardif<sup>1</sup>, Kannan Krishnan<sup>1</sup>

<sup>1</sup>Université de Montréal, Montreal, QC, Canada

Time: Wed. March 9, 1:00-4:30, poster board 514

#### Drugs interacting with trichloroethylene metabolism in rat and human

Mouna Cheikh-Rouhou<sup>2</sup>, Sami Haddad<sup>1</sup>

<sup>1</sup> Environmental and Occupational Health, Université de Montréal, Montréal, QC, Canada

<sup>2</sup> Biological Sciences, TOXEN, Université du Québec à Montréal, Montréal, QC, Canada

Time: Wed. March 9, 1:00-4:30, poster board 120

**2011 SOT Annual Meeting Courses/Sessions:****Courses/Sessions sponsored by MSS:**

Continuing Education Course (registration required): TOXICOLOGY AND RISK ASSESSMENT OF CHEMICAL MIXTURES

Presenters: Jane Ellen Simmons (US EPA), Christopher Borgert (Applied Pharmacology and Toxicology, Inc.), Sami Haddad (Université de Montréal), Moiz Mumtaz (CDC-ATSDR)

Time: Sunday, March 6, 8:15-12:00

Location: Room 151

*For details see page 92 of the program book*

Symposium: EMERGING ISSUES AT THE INTERSECTION OF REPRODUCTIVE AND MIXTURES TOXICOLOGY

Chair: Vickie Wilson (US EPA), co-chair: Cynthia Rider (NTP/NIEHS)

Speakers: Daniel Schlenk (UC Riverside), Gerald Ankley (EPA), Nancy Denslow (UF), Andreas Kortenkamp (University of London), and L. Earl Gray (EPA)

Time: Monday, March 7, 9:15-12:00,

Location: Room 143

*For details see page 116 of the program book*

Workshop: APPROACHES FOR INCORPORATING NON-CHEMICAL STRESSORS INTO CUMULATIVE RISK ASSESSMENTS

Chair: Cynthia Rider (NTP/NIEHS), co-chair: Jane Ellen Simmons (EPA)

Speakers: Moiz Mumtaz (CDC-ATSDR), Richard Hertzberg (Biomath Consulting), Paul Price (Dow), Michael Dourson (TERA)

Time: Wednesday, March 9, 9:00-11:45

Location: Room 204

*For details see page 276 of the program book*

**Courses/Sessions endorsed by MSS:**

Workshop: PBPK Model Use in Risk Assessment: Why Being Published is Not Enough

*For details see page 356 in the program book*

Workshop: Role of Biomarkers in Assessing Tobacco Harm Reduction: A Toxicological Perspective

*For details see page 357 in the program book*

**Endowment Fund Details:** Kannan Krishnan contributed \$5000 to the MSS to help fund activities for the next couple of years

**Newsletters:** Two Newsletters were sent to MSS members during 2010-2011 (November 2010, February 2011)

**Teleseminars:** The MSS planed to co-sponsor a mixtures webinar through the established RASS seminar series. The first MSS webinar was presented by Paul Price on 5/11/2011.

### **White Papers:** Submissions for 2012 SOT Annual Meeting

Below are some selected proposals that were sponsored or endorsed by the MSS. The complete list of MSS-related proposals that were accepted for the SOT 2012 program will be published in our Newsletter at a future date.

#### Sponsored by MSS:

- CE Advanced: Specialized Techniques for the Risk Assessment of Chemical Mixtures
- Workshop proposal: Sufficient Similarity of Whole Representative Mixtures or a Relative Potency Factor Approach: PAHs as a Case Study; Chair: Cynthia Rider (NTP/NIEHS), Co-chair: Julia Gohlke (University of Alabama at Birmingham)
- Symposium proposal: Complex Environmental Mixtures, Where Often More is Unknown than Known: Experimental and Computational Methods for Investigation of Complex Mixtures Toxicology; Chair: Hisham El-Masri (EPA), Co-chair: Jane Ellen Simmons (EPA)

#### Endorsed by MSS:

- Workshop proposal: Novel Topics in Environmental Polycyclic Aromatic Hydrocarbon Metabolism Leading to Carcinogenesis; Chairpersons: Danielle Carlin, (NIEHS) and Bhagavatula Moorthy (Baylor College of Medicine).

### **Contributions to SOT Web site:** annual report for 2009-2010, MSS newsletters

### **Other Specialty Section 2010-2011 Activities:**

Mixtures Specialty Section Officers Meeting 6:30-7:45 AM in Salon G of the Convention Center in Washington D.C. on March 7, 2011.

Attendees: Michael Dourson, Kannan Krishnan, David Mattie, Paul Price, Cynthia Rider, Ken Sexton (new officer), Jane Ellen Simmons, David Szabo (new officer)

#### Minutes:

- By-laws: David Mattie changed the language to include graduate student and post-doctoral representatives. Officers voted unanimously to accept the new language.
- New officer introductions
- Webinar: Paul Price suggesting asking RASS if we could provide speakers for and co-sponsor 1-2 of their monthly seminars per year.
- Newsletter: It was agreed that we should continue producing MSS Newsletters. Officers discussed content ideas including: key mixtures publications (Kannan Krishnan), invited opinion pieces (from MSS members), details about key words used in identifying abstracts for best abstract award consideration. We will try to have 3 newsletters per year (summer, fall, winter (right before SOT)).
- Awards: John Wiley will continue providing support for graduate student and post doc awards.
- Sponsorships: TERA sponsored officer meeting breakfast, Kannan Krishnan contributed \$5000 to the MSS to help fund activities for the next couple of years.
- Website: Paul Price is the contact person for updating the website. We should put Newsletters on the website, clean out old content, and upload more pictures.
- Membership: Ideas for increasing membership were discussed such as contacting CE Mixtures Course attendees, setting up a sign-up table at the MSS reception. Jane Ellen

Simmons suggested that we pay membership fees for all graduate students and post docs that apply for the MSS awards.

**Teleconferences:** Officers regularly participated in teleconferences throughout the year to discuss MSS business including: SOT Annual Meeting session submissions, awards, membership, newsletter, etc.