

# Society for Risk Analysis Annual Meeting

*Denver, Colorado*

*“Risk Analysis: The Common Denominator”*



**Final Program**

**Sheraton Denver**

**7-11 December 2014**

Thank you to our Mobile App Sponsors:

**Wiley Blackwell**

**Exponent**

Downloading the app is easy - visit your App store or Google Play and search for "SRA Annual Meeting", or point your browser to:

<http://M.core-apps.com/sra2014am>

Enjoy this great interactive tool!



### **2014 Council**

**President:** Ortwin Renn

**President-Elect:** Pamela Williams

**Secretary:** Cristina McLaughlin

**Treasurer:** Katherine von Stackelberg

**Treasurer-Elect:** Jacqueline Patterson

**Past-Treasurer:** R. Jeffrey Lewis

**Past President:** George Gray

**Executive Secretary:** David Drupa

**Councilors:**

Terje Aven	Katherine McComas
Seth Guikema	Jo Anne Shatkin
Margot Kuttschreuter	Linda Teuschler
Ragnar Lofstedt	Akihiro Tokai
	Marcelo Wolansky

### **2014 Program Committee**

Pamela Williams, President-Elect and Chair

Kofi Asante	Julie Fitzpatrick	Drew Rak
Terje Aven	Royce Francis	Rick Reiss
Christian Beaudrie	Elisabeth Gilmore	Shital Thekdi
Nancy Beck	Frank Hearl	Patty Toccalino
John Besley	Margôt Kuttschreuter	Audrey Turley
Gail Charnley Elliott	Stanley Levinson	Jane Van Doren
Genya Dana	Steve Lewis	Katrina von Stackelberg
Anneclaire De Roos	Margaret MacDonnell	Mark Walderhaug
Robin Dillon-Merrill	Cameron MacKenzie	Alison Willis
Amanda Evans		

# Society For Risk Analysis Annual Meeting

## 2014 Final Program

### Table of Contents

Award Winners .....	2
Registration Hours/Conference Events/Highlights .....	3
Specialty Group Meetings.....	4
Specialty Group Mixers.....	4
Exhibitors/Exhibition Hours.....	5
Workshops.....	6
Plenary Sessions.....	11
Monday Schedule at a Glance.....	14
Tuesday Schedule at a Glance.....	16
Wednesday Schedule at a Glance .....	18
Scientific Program Sessions .....	20-25, 32-47
Poster Reception/Session.....	26-31
Author Index .....	48
Hilton Baltimore Floor Plan.....	Inside Back Cover

### Meeting Highlights

**Meeting Events!** - All events take place at the Sheraton Denver. Start with the opening reception on Sunday in the Plaza Ballroom DE (7 December, 6:00-7:30 pm, Cash Bar), and continue to the closing Die Hard Risk Analyst - DHRA - T-Shirt Giveaway on Wednesday (10 December, 5:00-5:30 pm). The meeting includes three Plenary Sessions, and lunch on all three days.

#### Poster Reception!

This year's meeting will feature a poster reception with food and drinks in the Plaza Ballroom ABC, on Monday evening from 6:00 to 8:00 pm. Poster set up starts at 3:00 pm, and poster presenters will be at their posters for questions and discussion during the reception. Vote for the best poster awards. Don't miss it!

**AGAIN! Business Networking Breakfast** - Tuesday, December 9, 7:30-8:15 am, Plaza Court 8. All those interested in making business connections while attending SRA, come prepared with your 30 second commercial. Each participant will have 30 seconds to stand and let others know what type of business they're in, who their prospects are, and how others present can help them connect the dots. Make YOUR SRA experience really pay off! A continental breakfast will be available. Bring your business cards!

### Oral Presenter Ready Room Reminder - See Page 4 for Hours

If you are an Oral Presenter at the meeting, don't forget to upload your presentation in the Speaker Ready Room (Governor's Square 9) at least 24 hours prior to your presentation.

If you have already uploaded your talk, come by the Ready Room to ensure it has been received and uploaded correctly.

### Sheraton Denver

1550 Court Place  
Denver, Colorado 80202  
303-893-3333

**SRA 2014 Specialty Group  
Merit Award Winners**

**Decision Analysis & Risk**

Jonathan Welburn

**Dose-Response**

Chitrada Kaweeteerawat

**Economics and Benefits Analysis**

Laura Bakkensen

**Emerging Nanoscale Materials**

Ben Trump

**Exposure Assessment**

Makyba Charles

**Microbial Risk Analysis**

Abhinav Mishra

Gabriel Mootian

**Occupational Health and Safety**

Michelle Deveau

**Risk and Development**

Yuyang Zhou

**Risk Policy & Law**

Caleb Roh

**Security & Defense**

Jacob Trump

**SRA 2014 Student & International Award Winners**

Djillali Benouar

Douglas Bessette

Nancy Alejandra Cano Acosta

Huilin Cao

Amaury Caruzzo

Pei-Ting Chang

Ming-Yen Chien

Yu-Chaun Chuang

Luis Cifuentes

Elizabeth Connelly

Jinshu Cui

Christopher Cummings

Anne-Laure Cuvilliez

Ebenezer Dassah

Cristobal De La Maza

Osama El-Tawil

Rocio Garcia-Retamero

Miao Guo

Jinhyok Heo

Daniel Herrera

Tailin Huang

Emmanuel Idehen

Stephen Johnson

Se-Jin Kim

Katherine Koffman

Denna Kowalek

Shuying Li

Esperanza Lopez-Vazquez

Roberto Losada Maestre

Abhinav Mishra

Gabriel Mootian

Anne-Marie Nicol

Anoka Njan

Hao Pang

Carlos Dionisio Pérez-Blanco

Farnaz Pirasteh

Laura Read

Caleb Roh

Sungjong Roh

Noah Saber-Freedman

Ricarda Scheele

Adria Schwarber

Piet Sellke

Jennifer Sherry

Julie Shortridge

Robert Sposato

Damian Tago

Edoardo Tosoni

Jacob Trump

Tuba Tuncel

Joshua Uebelherr

Miao Wang

Yan Wang

Jonathan Welburn

Morgan Wickline

Alison Willis

Tsung-Ta Wu

Tong Wu

Linyu Xu

Ya-Ru Yang

Hui Yeh

An Gie Yong

Hwa-Lung Yu

Shupeí Yuan

Jing Zhang

Jiameng Zheng

Yuyang Zhou

## Conference Events, Committee Meetings

### Sunday 7 December

**World Congress 2015 Meeting Program**

**Committee Meeting**

8:00 AM–5:00 PM - Director's Row

**SRA Council Meeting**

Noon–5:00 PM - Governor's Square 14

**Editorial Board Meeting**

5:00–6:00 PM - Plaza Court 8

**SRA Welcome Reception – (Cash Bar)**

6:00–7:30 PM - Plaza Ballroom D&E

**Editorial Staff Meeting**

7:00–9:00 PM - Plaza Court 8

### Monday 8 December

**New Member, Students/Young Professionals, Fellows and International Members “Speed Dating” Breakfast**

7:00–8:00 AM - Governor's Square 17

All SRA Students, Young Professionals, International Members and Fellows as well as 2013 and 2014 New Members (badges with a New Member ribbon) are welcome to attend.

**Finance Committee**

7:00–8:30 AM - Plaza Court 4

**Conferences and Workshops Committee**

7:30–8:30 AM - Plaza Court 2

**Publications Committee**

7:30–8:30 AM - Plaza Court 3

**Opening Plenary Session**

8:30–10:00 AM - Plaza Ballroom ABC

**Specialty Group Meetings - Pick up your**

*box lunch by the SRA Registration Desk*

12:05–1:30 PM - See Page 4

**World Congress 2015 Meeting, Open to All**

5:15–7:00 PM - Director's Row I

**Poster Reception**

6:00–8:00 PM - Plaza Ballroom ABC

### Tuesday 9 December

**Audit Committee**

7:00–8:00 AM - Plaza Court 2

**Grad Student Breakfast**

7:00–8:00 AM - Plaza Court 7

**Business Networking Breakfast**

7:30–8:15 AM - Plaza Court 8

**Regions Committee**

7:30–8:30 AM - Plaza Court 4

**Communications Committee**

7:45–8:30 AM - Plaza Court 3

**Plenary Session**

8:30–10:00 AM - Plaza Ballroom ABC

**SRA Awards Luncheon and Business Meeting**

Noon–1:30 PM - Plaza Ballroom ABC

**SRA Council Meeting**

7:00–10:00 PM - Director's Row E

### Wednesday 10 December

**Specialty Group Chairs Breakfast**

7:30–8:30 AM - Plaza Court 2

**Book Signing and Coffee Break with Plenary Speakers - books available for sale**

10:00–10:30 AM - Plaza Ballroom Foyer

**Plenary Luncheon**

Noon–1:30 PM - Plaza Ballroom ABC

**Book Signing and Coffee Break with Plenary Speakers - books available for sale**

3:00–3:30 PM - Plaza Ballroom Foyer

**T-Shirt Giveaway**

Be a Die Hard Risk Analyst - Stay until the end of the sessions and receive a T-Shirt

5:00 PM - Plaza Ballroom Foyer

**\*\*\*Lunches Included in your Registration Fees\*\*\***

**Monday, Tuesday, Wednesday**

*Please see the Registration Desk if you have dietary restrictions*

### **Registration Hours**

**Sheraton Denver - Plaza Ballroom Foyer**

Sunday 7 December	4:00 - 6:00 PM
Monday 8 December	7:00 AM - 5:00 PM
Tuesday 9 December	8:00 AM - 5:00 PM
Wednesday 10 December	8:00 AM - 4:00 PM

## Specialty Group Meetings

Monday, 12/8 – 12:05–1:30 PM

All Specialty Group Meetings will take place during lunch time on **Monday 8 December**. Pick up your box lunch near the Registration desk and attend the meeting(s) of your choice.

### 12:05-12:30 pm

Dose Response - *Plaza Ballroom E*

Economics & Benefits Analysis - *Governor's Square 14*

Occupational Health & Safety - *Plaza Ballroom F*

Risk Communication - *Plaza Ballroom D*

Security & Defense - *Governor's Square 16*

### 12:35-1:00 pm

Ecological Risk Assessment - *Plaza Ballroom E*

Exposure Assessment - *Governor's Square 14*

Foundations of Risk - *Plaza Ballroom F*

Risk, Policy & Law - *Governor's Square 16*

Risk & Development - *Plaza Ballroom D*

### 1:05-1:30 pm

Applied Risk Management - *Plaza Ballroom F*

Decision Analysis & Risk - *Plaza Ballroom E*

Emerging Nanoscale Materials - *Governor's Square 14*

Engineering & Infrastructure - *Governor's Square 16*

Microbial Risk Analysis - *Plaza Ballroom D*

## Speaker Ready Room Hours

### Sheraton Denver - Governor's Square 9

Sunday	3:00 - 8:00 PM
Monday & Tuesday	7:00 AM - 5:00 PM
Wednesday	7:00 AM - 12:00 PM

## Specialty Group Mixers

Tuesday, 12/9 – 6:00–7:30 PM

Mixer 1 - DRSG, MRASG, EASG, ARMSG - *Plaza Court 2*

Mixer 2 - SDSG, DARSG, EISG, FRSG - *Plaza Court 3*

Mixer 3 - RCSG, OHSG, ERASG - *Plaza Court 4*

Mixer 4 - EBASG, ENMSG, RPLSG, RDSG - *Plaza Court 5*

### Key to Specialty Group Designations

ARM = Applied Risk Management	FRSG = Foundations of Risk
DARSG = Decision Analysis and Risk	MRASG = Microbial Risk Analysis
DRSG = Dose-Response	OHSSG = Occupational Health & Safety
EASG = Exposure Assessment	RCSG = Risk Communication
EBASG = Economics & Benefits Analysis	RDSG = Risk & Development
EISG = Engineering and Infrastructure	RPLSG = Risk Policy and Law
ENMSG = Emerging Nanoscale Materials	SDSG = Security and Defense
ERASG = Ecological Risk Assessment	



## Exhibition - Plaza Ballroom Foyer

Monday 9 December .....9:45 AM - 3:30 PM

Poster Reception .....6:00 - 8:00 PM

Tuesday 10 December .....9:45 AM - 3:30 PM

Wednesday 11 December.....9:45 AM - 3:30 PM

### Exhibitors

#### **ABT Associates**

55 Wheeler Street

Cambridge, MA 02138

617-520-2425; Fax: 617-492-5219

[www.abtassociates.com](http://www.abtassociates.com)

ABT Associates is a mission-driven, global leader in research and program implementation in the fields of health, social and environmental policy, and international development. Known for its rigorous approach to solving complex challenges, ABT Associates is regularly ranked as one of the top 20 global research firms and one of the top 40 international development innovators. The company has multiple offices in the U.S. and program offices in more than 40 countries.

#### **Cardno Chemrisk**

101 Second Street, Suite 700

San Francisco, CA 94105

415-896-2400

[www.cardnochemrisk.com](http://www.cardnochemrisk.com)

Cardno ChemRisk is a scientific consulting firm that specializes in helping clients characterize the health and environmental risk associated with complex exposures involving chemicals, pharmaceuticals or radionuclides in a variety of media and environments. We are respected worldwide for our risk assessment experience, technical capabilities, industry leadership, and pioneering spirit.

#### **ICF International**

9300 Lee Highway

Fairfax VA 22031

703-934-3000; Fax: 703-934-3740

[www.icfi.com](http://www.icfi.com)

ICF International (NASDAQ:ICFI) provides professional services and technology solutions that deliver beneficial impact in areas critical to the world's future. ICF is fluent in the language of change, whether driven by markets, technology, or policy. Since 1969, we have combined a passion for our work with deep industry expertise to tackle our clients' most important challenges. We partner with clients around the globe—advising, executing, innovating—to help them define and achieve success. Our more than 4,500 employees serve government and commercial clients from more than 70 offices worldwide.

#### **Springer Science & Business Media**

233 Spring Street

New York, NY 10013

781-347-1835

[www.springer.com](http://www.springer.com)

Springer is proud to publish the journal: Environment Systems and Decisions and the new book series: Risk Systems and Decisions. Please stop by our table and pick up more information about these exciting new publications. Springer published roughly 2,200 English-language journals and more than 8,400 new books in 2013, and the group is home to the world's largest STM eBook collection, as well as the most comprehensive portfolio of open access journals.

#### **Toxicology Excellence for Risk Assessment (TERA)**

2300 Montana Avenue, Suite 409

Cincinnati, OH 45211

513-542-7475; Fax: 513-542-8674

[www.tera.org](http://www.tera.org)

TERA is a non-profit organized for scientific and educational purposes. Our mission is to support the protection of public health by developing, reviewing and communicating risk assessment values and analyses; improving risk methods through research; and, educating risk assessors, managers, and the public on risk assessment issues.

#### **US Environmental Protection Agency (US EPA)**

1200 Pennsylvania Avenue NW

Maldrop 8601P

Washington, DC 20460

703-347-8545

[www.epa.gov/ncea/](http://www.epa.gov/ncea/)

EPA's National Center for Environmental Assessment (NCEA) is a leader in the science of human health and ecological risk assessment. NCEA addresses the needs of stakeholders by preparing technical reports and assessments that integrate and evaluate the most up-to-date research. These products serve as a major component of the scientific foundation supporting EPA's regulations and policies.

Join us to discuss the  
**2015 World Congress**

*Monday, 8 December*

5:15-7:00 pm, Director's Row I

## Workshops - Sunday, 7 December

Sunday 7 December Full Day – 8:30 am-5:30 pm  
(Lunch is on your own, 12:30-1:30 pm)

### **WK1S: Integrating Strategic Risk Communication with Risk Assessment to Achieve Targeted Risk Management Outcomes**

*Organizer(s): Gordon Butte, Decision Partners; Steve Ackerlund, Kleinfelder*

*Instructor(s): Gordon Butte, Decision Partners; Steve Ackerlund, Kleinfelder; Dan Kovacs, Decision Partners*

**Onsite Cost: \$500**

Risk management plans often fall short of achieving outcomes because those responsible do not effectively match the technical elements of the plan with the values, needs, interests and priorities of the relevant stakeholders in and outside their organization. The result is risk management plans are not implemented, despite their high intrinsic value.

This full-day workshop will explore the integration of risk communication practices with risk analysis to avoid a mismatch between technical elements of risk and stakeholder needs. Using a case study and class exercise format, facilitators will provide case examples from around the world of risk management plans that successfully integrated risk communication and risk analysis. Mental Modeling methodology will be discussed as a core technique for risk communication. In addition to lecture and instruction, the workshop will be a forum for dialogue and problem-solving where participants will be encouraged to share examples of their own risk challenges. Simple tools for risk analysis and communication design typical of those used in Mental Modeling will be provided for participants to use in the workshop to develop solutions to selected issues that can be applied in their organizations.

This workshop is designed for professionals responsible for the management or analysis of risks of all kinds affecting organizations of all types, including policy makers, regulators, industry or NGO managers, scientists, engineers, and planners. Participants will leave the course able to design a risk management approach that is appropriate to the nature of the risks and makes effective use of risk communication methods and tools.

### **WK2S: Cumulative Risk Assessment: Addressing Combined Environmental Stressors**

*Organizer(s): Linda K. Teuschler, LK Teuschler & Associates*

*Instructor(s): Linda K. Teuschler, LK Teuschler & Associates; Rick Hertzberg, Biomathematics Consulting; Margaret MacDonell, Argonne National Laboratory; Moiz Mumtaz, ATSDR; Jane Ellen Simmons, USEPA; Amanda M. Evans, Association of Schools of Public Health Research Fellow; Michael Wright, USEPA; Glenn E. Rice, USEPA*

**Preregistration Cost: \$349; Onsite Cost: \$399**

Cumulative risk assessment (CRA) addresses the impacts of multiple chemical and nonchemical stressors on real world individuals and communities, resulting in complex exposures for individuals and populations with a variety of vulnerabilities, in applications that range from environmental justice and community sustainability to individual health promotion and protection. Nonchemical stressors include biological and physical agents (e.g., microbes and noise) as well as socioeconomic stressors and psychosocial conditions (e.g., associated with natural disasters). Public concerns that can initiate CRAs include (1) elevated environmental measurements or biomonitoring data; (2) multiple sources of pollutants or stressors; and (3) changes in disease rates or patterns (e.g., leukemia cluster) or ecological effects (e.g., loss of wildlife diversity). This workshop focuses on human health and begins with an overview of three CRA elements: analysis, characterization, and quantification (as feasible) of the combined risks from multiple stressors. Teaching methods include lectures and hands-on exercises. Presentations highlight basic concepts, methods, and resources for conducting a population-based CRA. A central theme is integrating exposure and dose-response information with population characteristics during planning and scoping based on initiating factors. Vulnerability factors are addressed, e.g., diet/nutritional status, behaviors, genetic traits, socioeconomic status, sensitivities, and psychosocial stress. Methods for estimating human health risks are discussed and applied, including epidemiologic approaches and assessing the joint toxicity of chemical mixtures. In the exercises, participants develop chemical, biological and physical stressor groups using exposure and toxicity factors, link them with population vulnerability factors and conduct a risk characterization. Participants are asked to bring a calculator.



### **WK3S: An Introduction to Quantitative Microbial Risk Assessment (QMRA) for the Risk Professional**

*Organizer(s): Mark H. Weir, Temple University; Charles N. Haas, Drexel University*

*Instructor(s): Mark H. Weir, Temple University; Charles N. Haas, Drexel University; Patrick L. Gurian, Drexel University; Jade Mitchell, Michigan State University; John Scott Meschke, University of Washington*

#### **Onsite Cost: \$200**

QMRA is a growing field with increasing reliance placed upon it in policy and engineering decisions. Risk analysis professionals have the requisite basic skill set to complete and understand a QMRA. However, specialized knowledge and skills are required for accurate and appropriate QMRA development and use. This workshop will present an introduction to both the knowledge and skills, as well as QMRA data and models online interface being developed by the instructors. Basics of risk analysis will not be covered, rather, we will focus on the microbiology, mathematics, decision analytics and characterization specific to QMRA. The morning will be devoted to lectures that will introduce the concepts and the online resource ([www.qmrawiki.msu.edu](http://www.qmrawiki.msu.edu)) to be used in the afternoon. In the afternoon the attendees will be led through case studies based around specific scenarios in microbial risk assessment. The attendees are invited to bring their own personal computers to develop their own QMRA models and components, thereby, being able to retain these example models for future work.

Prior instruction or experience in risk analysis or probabilistic modeling is encouraged. If you have questions regarding your capabilities please contact workshop organizer Dr. Mark H. Weir ([mark.weir@temple.edu](mailto:mark.weir@temple.edu)).

It is recommended that you have a working knowledge of Excel (installed on your machine) and an open mind to new computational tools. It is recommended that you have R installed as well for demonstration purposes. It is also recommended that you visit the QMRA library to familiarize yourself with some of the concepts (<http://goo.gl/z8NrVj>).

### **WK5S: Fundamentals of Risk Assessment & Toxicology at Contaminated Sites**

*Organizer: Michael P. Musso, HDR, Inc.*

*Instructor: Michael P. Musso, HDR, Inc.*

#### **Onsite Cost: \$325**

The continuing education workshop “Fundamentals of Risk Assessment & Toxicology at Contaminated Sites” provide an overview of the 4 Step process of Human Health Risk Assessment (HHRA) utilized to evaluate chemical

contamination at hazardous waste sites, Brownfields, and other types of settings. Environmental regulatory frameworks (e.g., Federal, State agencies) into which HHRA is integrated for decision-making will be discussed. Examples and case studies regarding hazardous waste sites, contaminated media, and exposure settings relevant to human health will be provided for illustration purposes by the instructor, with opportunity for class participants to share experiences. Hazard identification, including interpretations of environmental data, and Exposure Assessment modules will be presented during the first half of the workshop. Toxicological Evaluation and Risk Characterization will be presented in the afternoon. During the course, key reference documents and tools available to the risk assessor, including updates that have been issued, will be discussed. In-class exercises will also be administered during the day to demonstrate the HHRA process (participants should bring a scientific calculator or laptop). The workshop is geared towards entry to mid-level environmental professionals working on contaminated or hazardous waste sites (e.g., EPA – or State-led) who would like to learn more about the fundamental 4-step HHRA process, or persons with a general interest in applying HHRA at contaminated sites.

### **Sunday Half Day Morning – 8:00 am-Noon**

#### **WK7S: Eliciting Judgments from Experts and Non-Experts to Inform Decision-Making**

*Organizer(s): Aylin Sertkaya, Eastern Research Group, Inc. (ERG); Cristina McLaughlin, Food & Drug Administration (FDA)*

*Instructor(s): Aylin Sertkaya, Eastern Research Group, Inc. (ERG); Cristina McLaughlin, Food & Drug Administration (FDA); Frank Hearl, National Institute for Occupational Safety and Health (NIOSH); David Cragin, Merck; Christy Powers, U.S. Environmental Protection Agency (EPA)*

#### **Onsite Cost: \$300**

Decision makers must frequently rely on data or information that is incomplete or inadequate in one way or another. Judgment, often from experts and occasionally from non-experts, then plays a critical role in the interpretation and characterization of those data as well as in the completion of information gaps. But how experts or non-experts are selected and their judgments elicited matters – they can also strongly influence the opinions obtained and the analysis on which they rely. Several approaches to eliciting judgments have evolved. The workshop will cover topics ranging from recruitment, elicitation protocol design, different elicitation techniques (e.g., individual elicitations, Delphi method,

nominal group technique, etc.) to aggregation methods for combining opinions of multiple individuals. The role of judgment elicitation and its limitations, problems, and risks in policy analysis will also be addressed. The workshop will include presentation of two case studies that will include a discussion of the selection process; elicitation protocol development, elicitation technique utilized, and the various issues that arose before, during, and after the elicitation process and the manner in which they were resolved. The class will also include two hands-on exercises where participants will 1) learn about calibration of experts using a mobile application and 2) apply the Delphi and nominal group techniques to examine risk management issues associated with recreational marijuana.

### **Sunday Half Day Afternoon – 1:00-5:00 PM**

#### **WK10S: Field Trip to Rocky Mountain Arsenal National Wildlife Refuge**

*Organizer(s): Randall Ryti, Neptune and Company, Inc.*

*Instructor(s): Scott Klingensmith, Flatirons Toxicology, Inc.; Gary Drendel, Tetratex; Bruce Hastings, USFWS*

**Onsite Cost: \$50**

A unique field trip workshop is being offered to SRA members to see firsthand a successful ecological restoration project. The former Rocky Arsenal Site was restored as a collaborative effort among the U.S. Army, Shell Oil Co., and the U.S. Fish and Wildlife Service. Located just northeast of Denver, the Rocky Mountain Arsenal National Wildlife Refuge is a 15,000-acre expanse of prairie, wetland and woodland habitat. We will start with a 30-minute overview lecture at the auditorium located at the visitor's center covering the site history, human health and ecological risk assessments, and restoration work. After the introduction, we will board the Refuge's bus for a tour of some highlights of the restoration work and places to view early winter wildlife. The land has a unique story - it has survived the test of time and transitioned from farmland, to wartime manufacturing site, to wildlife sanctuary. It may be one of the finest conservation success stories in history and a place where wildlife thrives. The Refuge is a sanctuary for more than 330 species of animals, including bison, deer, coyotes, bald eagles and burrowing owls. In the fall, coyotes are well-camouflaged among the rust and golden-colored grasses as they hunt from the edges of prairie dog towns. Mule and white-tailed deer bucks display their impressive antlers as they compete for does. Refuge lakes provide a haven for migrating waterfowl such as northern pintails, northern shovelers, redheads, and ring-necked ducks.

#### **WK12S: Methods for Quantifying and Valuing Population Health Impacts**

*Organizer(s): Kevin Brand, University of Ottawa*

*Instructor(s): Kevin Brand, University of Ottawa; Sandra Hoffman, USDA*

**Onsite Cost: \$300**

The workshop reviews standard practices and emerging issues related to the quantification of a population's health state. Particular attention is paid to the array of metrics available for this purpose, their use in quantifying population health impacts, and how these impact projections can be integrated into economic valuations. Risk assessment typically couples exposure information with an exposure-response relationship to estimate changes in incidence rates (e.g., a mortality rate). Expressed in this fashion (along an incident rate scale) these impact measures fall short. They do not capture the burden of disease, are not readily interpretable, complicate the comparison of disease outcomes, and are not suited to a single number summary. This workshop focuses on the methods required to get readily interpretable, comparable, bottom-line, summaries of health impact.

A dizzying array of metrics can be used to quantify health impacts. Consider for example "avoidable deaths," PEYLLs, life-expectancy, lifetime risk, HALEs, QALYs, DALEs, DALYs and 'attributable-fractions' to name just a few. In this workshop we survey and bring order to these variants, classifying the metrics into a couple of categories. A finer grained classification is provided based on how the metric is calculated; for example does it adjust for the size and age structure of the population under study. The key choices and their influence upon projected outcomes will be outlined. Finally, a survey of the key steps and considerations that are required to map the health impacts, expressed in units such as change in life-expectancy, into health-economic evaluations will be offered.

## Workshop - Thursday, 11 December

Thursday 11 December Full Day – 8:30 am-5:30 pm  
(Lunch is on your own, 12:30-1:30 pm)

### **WK17T: Introduction to Monte Carlo Simulation for Exposure Assessments with Excel Tools**

*Organizer(s): Tom Armstrong, TWA8HR Occupational Hygiene Consulting, LLC; Fred Boelter, Environ International Corporation*

*Instructor(s): Tom Armstrong, TWA8HR Occupational Hygiene Consulting, LLC; Fred Boelter, Environ International Corporation*

#### **Onsite Cost: \$400**

The workshop provides background and experience with Monte Carlo Simulation (MCS) methods with a focus on exposure modeling for consumer, general population and environmental applications. MCS methods 1) define calculation input probability distributions for a calculation, 2) generate random values of the inputs from the defined probability distributions, 3) perform the modeling calculations using random inputs and 4) aggregate and statistically evaluate the results. MCS methods have use in exposure assessment practice for estimating exposures, past, present or future. The results have utility in risk assessment by comparison to metrics of acceptable exposure.

The workshop will review basic MCS methods, and provide a synopsis of available software, both commercial and freeware. Instructors will provide examples of the use of MCS methods in estimating exposures to toxic agents. Following the examples, participants will have exercises designed for them to learn the software, selection of input distributions, the calculations, and interpretation of results. Prior to the course start, participants will be asked to provide scenarios to work through as in-class case studies. An understanding of sensitivity analysis, as well as the difference of and need for additional uncertainty analyses will be developed. The relationship between variability and epistemic uncertainty as it relates to the inputs, results and final analysis will be covered in detail.

Participants will be expected to bring their own notebook PC with MS Excel and ability to enable macros, in order to keep notes on the handouts, and to run the software for the participant case studies.

## SRA World Congress

**SRA 4th World Congress**

**19-22 July 2015**

*Plan on joining us in Singapore!*

## **NEW this year!**

### **Wynkoop Brewery Tour**

*Sunday, 12/7 - 3:00-4:00 PM*

### **Plenaries on Monday and Tuesday**

*Enjoy coffee and snacks accompanying the Monday and Tuesday morning Plenaries between 8:00-8:30 AM.*

### **“Speed-dating” Breakfast - Calling all students, young professionals, new SRA members, and SRA international members!**

*Monday, 12/8 - 7:00-8:00 AM*

*Come to the newly formatted special breakfast event - this will be done in “speed dating” format, giving you chance to speak with SRA Board and Council members, Specialty Group chairs, and esteemed SRA members!*

### **Come to the SRA Book Signing with two Plenary Speakers!**

*Wednesday, 12/10 - 10:00-10:30 AM and 3:00-3:30 PM*

*Kathleen Tierney, “The Social Roots of Risk: Producing Disasters, Promoting Resilience”*

*Susan Cutter, “Hurricane Katrina and the Forgotten Coast of Mississippi”*

### **SRA Ski Day**

*Thursday, 12/11 - 7:00 AM-8:00 PM*

*\$175 for skiing and snowboarding, \$110 for snowshoeing. Transportation and lift tickets are included, but not equipment.*

*Stop by the SRA Registration Desk to sign up!*

### **Media Outreach to Local, Regional and International Reporters and Authors**

*See page 12 for more information*

# PLENARY SESSIONS

All Plenary Sessions will be held in the Sheraton Denver, Plaza Ballroom ABC

## Opening Plenary Session

**Monday 8 December 8:30 – 10:00 AM**

*Coffee & snacks will be provided, 8:00-8:30 AM*

### **“Technological Advances, Risk Tradeoffs, and Societal Concerns Associated with Hydraulic Fracking”**

Bernard Goldstein, *Emeritus Professor and Dean, University of Pittsburgh Graduate School of Public Health*

Tisha Schuller, *President & Chief Executive Officer, Colorado Oil & Gas Association (COGA)*

Patty Limerick, *Faculty Director and Chair of the Board, Center of the American West, University of Colorado*

Governor Bill Ritter, *Former Colorado Governor and Director, Center for the New Energy Economy, Colorado State University*

**Tuesday 9 December, Morning Plenary, 8:30 – 10:00 AM**

*Coffee & snacks will be provided, 8:00-8:30 AM*

### **“Risks, Benefits, and Public Policy Issues Surrounding Legalized Marijuana Use”**

*Moderator: David Goff, Dean, Colorado School of Public Health*

Tim Byers, *Associate Dean for Public Health Practice, Colorado School of Public Health*

Amanda Reiman, *Manager, Marijuana Law and Policy, California Drug Policy Alliance*

**Wednesday 10 December, Plenary Luncheon, Noon – 1:30 PM**

### **“Natural Disaster Risks: Strategies for Adaptation and Risk Management”**

Kathleen Tierney, *Director, Natural Hazards Center, University of Colorado*

Susan Cutter, *Director, Hazards and Vulnerability Research Institute, University of South Carolina*

## **Mark your calendar!**

### **Dates for the 2015 - 2017 Annual Meetings:**

**2015 - 6-9 December**

*Crystal Gateway Marriott, Arlington, Virginia*

**2016 - 11-15 December**

*Sheraton San Diego, California*

**2017 - 10-14 December**

*Crystal Gateway Marriott, Arlington, Virginia*

### **SRA Media Outreach**

The SRA News Release Subcommittee of the Communications Committee has expanded its efforts to reach out to local, regional and international reporters and authors to cover the compelling variety of topics that will be addressed at this year's conference. Because SRA members address so many critical health, safety, engineering, decision-support and economic issues as part of their daily work, the Society offers a lot to interested media to cover in their work. A November SRA news release on wildfire transmission risks on Colorado's Front Range (the Eastern Rocky Mountains) creates synergies for the society in terms of putting useful knowledge before the Colorado media even before this conference convened. This whetted the appetite of local media before SRA issued its news release on the conference itself highlighting fracking, marijuana and natural disaster risks such as the recent Colorado floods.

Media representatives, you might have an opportunity to showcase your own work, or offer an opinion!



**EDITOR-IN-CHIEF:**  
**Ragnar E. Löfstedt**, *King's College London, UK*  
**MANAGING EDITOR:**  
**Jamie K. Wardman**, *University of Lincoln, UK*



# Journal of Risk Research

**Journal of Risk Research** is the official journal of the Society for Risk Analysis Europe and the Society for Risk Analysis Japan.

*Journal of Risk Research* is an international journal that publishes peer-reviewed theoretical and empirical research articles within the risk field from the areas of social, physical and health sciences and engineering, as well as articles related to decision making, regulation and policy issues in all disciplines. The main aims of the *Journal of Risk Research* are to stimulate intellectual debate, to promote better risk management practices and to contribute to the development of risk management methodologies.

## Explore Routledge Business & Management journals

Would you like 14 days' **FREE ONLINE ACCESS** to all Routledge Business and Management journals, including the *Journal of Risk Research*?

Simply sign in or register at: [www.tandfonline.com/r/business](http://www.tandfonline.com/r/business) to claim your **FREE ONLINE ACCESS\*** to selected articles.

\* Online access for 14 days from activation. Voucher can only be activated once. Offer expires 31/12/2014.

## Keep in touch...



Like us on Facebook at  
[www.facebook.com/bme.routledge](http://www.facebook.com/bme.routledge)



Follow us on Twitter  
[@routledge\\_bma](https://twitter.com/routledge_bma)

Sign up to Business & Management eBulletins at [www.tandfonline.com/eupdates](http://www.tandfonline.com/eupdates).

**Monday 8 December 2014**

**7:00-8:00 AM**      **New Member, Fellows, Students, Young Professionals and International Members Breakfast** - *Governor's Square 17*

**8:30-10:00 AM**      **Plenary Session**, "Technological Advances, Risk Tradeoffs, and Societal Concerns Associated with Hydraulic Fracking" - *Plaza Ballroom ABC*  
*Panelists Include: Bernard Goldstein, Tisha Schuller, Patty Limerick, Governor Bill Ritter*

**10:00-10:30 AM**      **Coffee Break** - *Plaza Ballroom Foyer*

	<b>Plaza Court 1</b>	<b>Plaza Court 6</b>	<b>Governors Square 10</b>	<b>Governors Square 11</b>	<b>Governors Square 12</b>
--	----------------------	----------------------	----------------------------	----------------------------	----------------------------

<b>10:30 AM- Noon</b>	<b>M2-A</b> Decision Approaches for Infrastructure Resilience and Cyber Security	<b>M2-B Symposium:</b> The Costs of Inaction: Estimating the Damages from Climate Change	<b>M2-C</b> Complex Challenges in Health Policy	<b>M2-D Symposium:</b> Aviation Security Risk Analysis	<b>M2-E</b> Food and Water Microbial Safety
---------------------------	--	--	---	--	---

**Noon-1:30 PM** Pick up your box lunch near the Registration desk and attend the specialty group meeting(s) of your choice. **See page 4 for locations.**  
 12:05-12:30 PM - Dose-Response, Economics & Benefits, Occupational Health & Safety, Risk Communication, and Security & Defense Specialty Groups  
 12:35-1:00 PM - Ecological Risk Assessment, Exposure Assessment, Foundations of Risk, Risk Policy & Law, and Risk & Development Specialty Groups  
 1:05-1:30 PM - Applied Risk Management, Decision Analysis and Risk, Emerging Nanoscale Materials, Engineering & Infrastructure, and Microbial Risk Analysis Specialty Groups

<b>1:30- 3:00 PM</b>	<b>M3-A Symposium:</b> Sharpening 21st Century Science to Support Risk Assessment and Inform Regulatory Decision-Making	<b>M3-B Symposium:</b> Foundational Issues I	<b>M3-C</b> Managing Risk for Energy Infrastructure Systems	<b>M3-D Symposium:</b> Risk of Wildlife, Fishery, Poaching and Improving Anti-Poaching Security Strategies	<b>M3-E Symposium:</b> Uncertainty in Microbial Risk Assessment Part I
--------------------------	---	--	---	--	--

**3:00-3:30 PM**      **Coffee Break** - *Plaza Ballroom Foyer*

<b>3:30- 5:00 PM</b>	<b>M4-A Symposium:</b> Development and Risk	<b>M4-B Symposium:</b> Cost of Illness Studies and Beyond	<b>M4-C</b> Navigating Shifting Regulatory Landscapes	<b>M4-D Symposium:</b> Cyber Security and Privacy Risk	<b>M4-E Symposium:</b> Uncertainty in Microbial Risk Assessment Part II
--------------------------	---	---	---	--	---

**6:00-8:00 PM**      **Poster Reception**, *Plaza Ballroom ABC*  
 Vote for the top 3 posters!

**5:15-7:00 PM**      **World Congress 2015 Meeting**, *Director's Row I*



7:00-8:00 AM **New Member, Fellows, Students, Young Professionals and International Members Breakfast** - *Governor's Square 17*

8:30-10:00 AM **Plenary Session**, "Technological Advances, Risk Tradeoffs, and Societal Concerns Associated with Hydraulic Fracking" - *Plaza Ballroom ABC*  
*Panelists Include: Bernard Goldstein, Tisha Schuller, Patty Limerick, Governor Bill Ritter*

10:00-10:30 AM **Coffee Break** - *Plaza Ballroom Foyer*

	Plaza Ballroom D	Plaza Ballroom E	Plaza Ballroom F	Governors Square 14	Governors Square 15	Governors Square 16
--	------------------	------------------	------------------	---------------------	---------------------	---------------------

10:30 AM- Noon	<b>M2-F Symposium:</b> Characterization of Occupational, Ecosystem and Environmental Risks from Unconventional Natural Gas Development	<b>M2-G Symposium:</b> Role of Expert Elicitation in Helping Make Better Risk Assessment Decisions: Mode of Action Debate Using Real Time Audience Input	<b>M2-H Symposium:</b> Understanding and Regulating Risks from Perchlorate	<b>M2-I</b> Household Exposures	<b>M2-J</b> Risk Communication and Trust	<b>M2-K</b> Symposium: Risk Communication and Energy
-------------------	--	--	--	---------------------------------	--	--

12:05-12:30 PM - Dose-Response, Economics & Benefits, Occupational Health & Safety, Risk Communication, and Security & Defense Specialty Groups  
 12:35-1:00 PM - Ecological Risk Assessment, Exposure Assessment, Foundations of Risk, Risk Policy & Law, and Risk & Development Specialty Groups  
 1:05-1:30 PM - Decision Analysis and Risk, Emerging Nanoscale Materials, Engineering & Infrastructure, and Microbial Risk Analysis Specialty Groups

1:30- 3:00 PM	<b>M3-F Roundtable:</b> Discussion of Regulation, Policy, and Community Issues Relating to Hydraulic Fracking	<b>M3-G Symposium:</b> Assessing the Risks of Engineered Nanomaterials: Lessons from Combustion	<b>M3-H Symposium:</b> Component Methods to Assess Chemical Mixtures Risks	<b>M3-I Symposium:</b> Assessing the Worst Risks First: Bringing QRA to the Problem of Workplace Toxicants	<b>M3-J Symposium:</b> Risk, Perception, and Response, Part I	<b>M3-K Symposium:</b> Interdisciplinary Perspectives on Climate Change
------------------	---	---	--	--	---	---

3:00-3:30 PM **Coffee Break** - *Plaza Ballroom Foyer*

3:30- 5:00 PM	<b>M4-F</b> Fracking Risks and Perception	<b>M4-G</b> AOP for 21st Century Risk Assessment	<b>M4-H Symposium:</b> CRA Methods for EPA CRA Guidelines	<b>M4-I Symposium:</b> Retrospective and Prospective Risk Characterization, Application and Communication	<b>M4-J Symposium:</b> Risk, Perception and Response, Part II	<b>M4-K</b> Risk Communication and Climate Change
------------------	---	--	---	---	---	---

6:00-8:00 PM **Poster Reception**, *Plaza Ballroom ABC*  
 Vote for the top 3 posters!

5:15-7:00 PM **World Congress 2015 Meeting**, *Director's Row I*

7:30-8:15 AM		<b>Business Networking Breakfast</b> - <i>Plaza Court 8</i>				
8:30-10:00 AM		<b>Plenary Session</b> , “Risks, Benefits, and Public Policy Issues Surrounding Legalized Marijuana Use” - <i>Plaza Ballroom ABC</i> <i>Panelists Include: David Goff, Tim Byers, Amanda Reiman</i>				
10:00-10:30 AM		<b>Coffee Break</b> - <i>Plaza Ballroom Foyer</i>				
		<b>Plaza Court 1</b>	<b>Plaza Court 6</b>	<b>Governors Square 10</b>	<b>Governors Square 11</b>	<b>Governors Square 12</b>
10:30 AM- Noon		<b>T2-A Symposium:</b> Global Catastrophic Risk	<b>T2-B</b> Benefit-Cost Analysis for Environmental Applications	<b>T2-C</b> Investing for Resilience in Complex Systems	<b>T2-D Symposium:</b> Pushing Forward: Continued Identification, Assessment, and Management of the Risks Associated with Chemicals and Materials in the Department of Defense	<b>T2-E Symposium:</b> Evolving Environment: Produce-Related Food Safety Risk Modeling
Noon-1:30 PM		<b>SRA Awards Luncheon and Business Meeting</b> - <i>Plaza Ballroom ABC</i> Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday’s Poster Reception. (Included in Registration Fee)				
1:30- 3:00 PM		<b>T3-A Symposium:</b> Adaptive Risk Governance: Integrative Facts and Values in Decision Making	<b>T3-B Roundtable:</b> Challenges & Opportunities for Economic Analysis of Risk Policy	<b>T3-C Symposium:</b> Risk Hazard and the Business Value Chain from Manufacturers to Retailers	<b>T3-D Symposium:</b> Perspectives on Risk Management in National Security	<b>T3-E</b> Quantitative Methods in Microbial Risk Analysis
3:00-3:30 PM		<b>Coffee Break</b> - <i>Plaza Ballroom Foyer</i>				
3:30- 5:00 PM		<b>T4-A</b> Environmental Risks and Decisions: Airborne Chemicals, Radiation, and Big Data	<b>T4-B Symposium:</b> Innovations in Benefit Cost Analysis	<b>T4-C Symposium:</b> Infrastructure Management and Investment	<b>T4-D Symposium:</b> Dermal Exposure Assessment	<b>T4-E</b> Bayesian Networks and Other Probabilistic Methods Applied to Ecological Risk
5:00-6:00 PM		<b>T5-F Roundtable: Risk &amp; Transparency: Learning from Research and Practice</b> - <i>Plaza Ballroom D</i> <i>Panelists include: Ann Bostrom, Frederic Boudier, Jonathan Gledhill, James Hammitt, Ragnar Lofstedt, Katherine McComas, Bob O’Connor, Lisa Robinson, Dominic Way</i>				
5:15-7:00 PM		<b>T5-H Symposium: IRIS Café: Open Space Discussion</b> - <i>Plaza Ballroom F</i> <i>Co-Chairs: Nancy Beck, Vincent Coghiano</i>				
6:00-7:30 PM		<b>Specialty Group Mixers</b> - <i>see pages 4 and 38 for locations</i>				

**7:30-8:15 AM Business Networking Breakfast - Plaza Court 8**

**8:30-10:00 AM Plenary Session, “Risks, Benefits, and Public Policy Issues Surrounding Legalized Marijuana Use” - Plaza Ballroom ABC**  
*Panelists Include: David Goff, Tim Byers, Amanda Reiman*

**10:00-10:30 AM Coffee Break - Plaza Ballroom Foyer**

	Plaza Ballroom D	Plaza Ballroom E	Plaza Ballroom F	Governors Square 14	Governors Square 15	Governors Square 16
<b>10:30 AM- Noon</b>	<b>T2-F Symposium:</b> Evaluating the Public Health Risks of Marijuana: Scientific Evidence and Data Needs	<b>T2-G Symposium:</b> Foundational Issues II: Confronting the Unforeseen and Black Swans	<b>T2-H Symposium:</b> Regulatory Risk Analysis Part I	<b>T2-I Symposium:</b> Communication Challenges in the Occupational Setting	<b>T2-J Multimedia Session:</b> Risk Communications for Design Analysis, Framing and Language Issues	<b>T2-K Risk Communication and Health Issues</b> Plaza Court 1

**Noon-1:30 PM SRA Awards Luncheon and Business Meeting - Plaza Ballroom ABC**  
 Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday’s Poster Reception. (Included in Registration Fee)

<b>1:30- 3:00 PM</b>	<b>T3-F Roundtable:</b> Meet the Editors (Part 1): Where Can I Publish My Risk Related Research?	<b>T3-G Cancer Dose Response</b>	<b>T3-H Symposium:</b> Regulatory Risk Analysis Part II	<b>T3-I Symposium:</b> Foundational Issues III: Uncertainties in Risk Analysis	<b>T3-J Multimedia Session:</b> Risk Communication Potpourri	<b>T3-K Risk Communication and Food Issues</b>
--------------------------	--	----------------------------------	---	--	--	--

**3:00-3:30 PM Coffee Break - Plaza Ballroom Foyer**

<b>3:30- 5:00 PM</b>	<b>T4-F Roundtable:</b> Meet the Editors (Part 2): What are the Current Issues Facing Scientific Publishing?	<b>T4-G Symposium:</b> Nanoinformatics: Enabling and Applying the Linkage of Nanomaterials Datasets to Inform Decisions Related to Nano Risks	<b>T4-H Symposium:</b> Implementing NRC Recommendations: IRIS	<b>T4-I Symposium:</b> Advancing Cumulative Risk Assessment: Addressing the Challenges	<b>T4-J Microbial Risk Assessment</b>	<b>T4-K Risk Communication and Genetically Modified Food and Organisms</b>
--------------------------	--	---	---	--	---------------------------------------	--

**5:00-6:00 PM T5-F Roundtable: Risk & Transparency: Learning from Research and Practice - Plaza Ballroom D**  
*Panelists include: Ann Bostrom, Frederic Boudier, Jonathan Gledhill, James Hammitt, Ragnar Lofstedt, Katherine McComas, Bob O’Connor, Lisa Robinson, Dominic Way*

**5:15-7:00 PM T5-H Symposium: IRIS Café: Open Space Discussion - Plaza Ballroom F**  
*Co-Chairs: Nancy Beck, Vincent Cogliano*

**6:00-7:30 PM Specialty Group Mixers - see pages 4 and 38 for locations**

**Wednesday 10 December 2014**

	Plaza Court 1	Plaza Court 6	Governors Square 10	Governors Square 11	Governors Square 12
8:30-10:00 AM	<b>W1-A</b> Safety Decisions: From Transportation to Medical and Consumer Products	<b>W1-B</b> Advances in Managing Risk Using Economics	<b>W1-C Symposium:</b> Assessing and Managing Risks of Indigenous Communities Displaced by Climate Phenomena	<b>W1-D Symposium:</b> Modeling and Validating Attacker-Defender Games Part I	<b>W1-E</b> Microbial Risk Analysis Tools Supporting Decision Analysis
10:00-10:30 AM	<b>Book Signing with Plenary Speakers, and Coffee Break - Plaza Ballroom Foyer</b> Kathleen Tierney, <i>“The Social Roots of Risk: Producing Disasters, Promoting Resilience”</i> , and Susan Cutter, <i>“Hurricane Katrina and the Forgotten Coast of Mississippi”</i>				
10:30 AM- Noon	<b>W2-A</b> Predictive Decision Tools for Chemical and Microbial Hazards and Mortality Estimates	<b>W2-B Symposium:</b> Assessing the Impact of Risk Management Strategies	<b>W2-C</b> Managing Risk for Transportation Networks	<b>W2-D Symposium:</b> Modeling and Validating Attacker-Defender Games Part II	<b>W2-E Symposium:</b> Risk Assessments Through Lens of Interactions Among Assessors, Manager, and Constituents
Noon-1:30 PM	<b>Plenary Luncheon, “Natural Disaster Risks: Strategies for Adaptation and Risk Management” - Plaza Ballroom ABC</b> <i>Kathleen Tierney, Susan Cutter</i>				
1:30-3:00 PM	<b>W3-A</b> Decision Making for Natural Disasters	<b>W3-B Symposium:</b> Advances in Economic Consequences: Analysis of Terrorism and Natural Disasters	<b>W3-C Symposium:</b> Sustainability	<b>W3-D Symposium:</b> What’s that Smell? The Elk River Crude MCHM Spill	<b>W3-E</b> Synthetic Biology and Risk Assessment
3:00-3:30 PM	<b>Book Signing with Plenary Speakers, and Coffee Break - Plaza Ballroom Foyer</b> Kathleen Tierney, <i>“The Social Roots of Risk: Producing Disasters, Promoting Resilience”</i> , and Susan Cutter, <i>“Hurricane Katrina and the Forgotten Coast of Mississippi”</i>				
3:30-5:00 PM	<b>W4-A</b> Decision Analysis For Energy Options	<b>W4-B Symposium:</b> Risk Regulation and the Economic Value of Mortality Risk Reductions	<b>W4-C Symposium:</b> Risk Analysis: Adaptive Management: Complex World of Administrative Law: Decision-Making for Environmental and NR projects	<b>W4-D</b> National and International Military Issues	<b>W4-E Symposium:</b> Understanding and Communicating Hazard Assessment
5:00-5:30 PM	<b>T-Shirt Giveaway - Registration Area, Plaza Ballroom Foyer</b> Stay and receive a free T-Shirt!				

**Wednesday 10 December 2014**

	Governors Square 15	Plaza Ballroom E	Plaza Ballroom F	Governors Square 14	Plaza Ballroom D	Governors Square 16
<b>8:30-10:00 AM</b>	<b>W1-F</b> Air Pollution Exposure	<b>W1-G</b> Foundational Issues IV	<b>W1-H Symposium:</b> Implementation of EPA's HHRA Framework, Part I	<b>W1-I Symposium:</b> Retrospective Exposure Methods, Utility, and Challenges (Part I)	<b>W1-J Symposium:</b> Natural Hazards Risk Perception and Response	<b>W1-K</b> Risk Communications and Social Media 10:30 AM - Noon
<b>10:00-10:30 AM</b>	<b>Book Signing with Plenary Speakers, and Coffee Break - Plaza Ballroom Foyer</b> Kathleen Tierney, <i>"The Social Roots of Risk: Producing Disasters, Promoting Resilience"</i> , and Susan Cutter, <i>"Hurricane Katrina and the Forgotten Coast of Mississippi"</i>					
<b>10:30 AM- Noon</b>	<b>W2-F Roundtable:</b> A Discussion on Risk Reduction from the Disaster Management Perspective	<b>W2-G Symposium:</b> Advancing Alternative Testing Strategies for Emerging Nanoscale Materials: A Workshop Report	<b>W2-H Symposium:</b> Implementation of EPA's HHRA Framework, Part II	<b>W2-I Symposium:</b> Retrospective Exposure Methods, Utility, and Challenges (Part II)	<b>W2-J</b> Natural Hazards and Disasters	<b>W2-K</b> Visual Communications
<b>Noon-1:30 PM</b>	<b>Plenary Luncheon, "Natural Disaster Risks: Strategies for Adaptation and Risk Management"</b> - Plaza Ballroom ABC Kathleen Tierney, Susan Cutter					
<b>1:30-3:00 PM</b>	<b>W3-F</b> Climate Change: Expert Judgment and Public Perception	<b>W3-G Symposium:</b> Data Emerging Technologies, Part I	<b>W3-H Symposium:</b> Relatively New Frontiers in Regulatory Science: Tobacco	<b>W3-I Symposium:</b> Examining the Integration of Environmental and Occupational Data to Inform Human Health Risk Assessment	<b>W3-J Symposium:</b> Evidence Based Transparency	<b>W3-K</b> Mental Models
<b>3:00-3:30 PM</b>	<b>Book Signing with Plenary Speakers, and Coffee Break - Plaza Ballroom Foyer</b> Kathleen Tierney, <i>"The Social Roots of Risk: Producing Disasters, Promoting Resilience"</i> , and Susan Cutter, <i>"Hurricane Katrina and the Forgotten Coast of Mississippi"</i>					
<b>3:30-5:00 PM</b>	<b>W4-F Multimedia Session:</b> Understanding & Adapting to the Impacts of Climate Change	<b>W4-G Symposium:</b> Data Emerging Technologies, Part II	<b>W4-H Symposium:</b> Beyond Science and Decision Workshop Series	<b>W4-I Symposium:</b> Development and Application of Advanced Risk Assessment for Lung Cancer with Asbestos	<b>W4-J Symposium:</b> The Art of Thinking (Fast and Slow) about Emerging Risks	<b>W4-K</b> Professionalization of Risk Communication and Training
<b>5:00-5:30 PM</b>	<b>T-Shirt Giveaway - Registration Area, Plaza Ballroom Foyer</b> Stay and receive a free T-Shirt!					

Technical Program

Presenter's name is asterisked (\*) if other than first author.

<p><b>10:30 AM - Noon</b> <i>Plaza Court 1</i> <b>M2-A Decision Approaches for Infrastructure Resilience and Cyber Security</b> <i>Chair: Igor Linkov</i></p> <p><b>10:30 AM M2-A.1</b> A complex network-based approach for quantifying resilience of critical infrastructure <i>Massaro E, Steen A, Gutfraind A, Collier ZA, Kott A, Linkov I</i> <i>US Army Engineer Research and Development Center</i></p> <p><b>10:50 AM M2-A.3</b> Quantifying resilience of critical infrastructure systems <i>Massaro EM, Ganin A, Steen A, Collier ZA, Kott A, Gutfraind A, Linkov I</i> <i>US Army Engineer Research and Development Center, Carnegie Mellon University</i></p> <p><b>11:10 AM M2-A.4</b> Framing critical infrastructure resilience functional requirements using model-based systems engineering <i>Montoya M, Mazzuchetti T, Sarkani S</i> <i>George Washington University</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Court 6</i> <b>M2-B Symposium: The Costs of Inaction: Estimating the Damages from Climate Change</b> <i>Chair: Elisabeth Gilmore</i></p> <p><b>10:30 AM M2-B.1</b> Using scenarios for analyzing future climate change impacts <i>van Ruijven BJ</i> <i>National Center for Atmospheric Research</i></p> <p><b>10:50 AM M2-B.2</b> Estimating the economic damages from temperature related human health effects in the US <i>Gilmore EA, Calvin KV, Green-Barnes J, Hennig R, Puett R, Saptoeka A, Schwarber A</i> <i>University of Maryland</i></p> <p><b>11:10 AM M2-B.3</b> Climate risks over space and time: prospects for improving estimates of global climate change damages with detailed physical projections and more robust impact functions <i>Kopp RE, Hsiang SM, Jina AS, Rising J, Rasmussen DJ, Delgado M, Moban S, Oppenheimer M</i> <i>Rutgers University, University of California-Berkeley, Columbia University, Rhodium Group, Princeton University</i></p> <p><b>11:30 AM M2-B.4</b> Projecting climate damages <i>Lemoine D</i> <i>University of Arizona</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 10</i> <b>M2-C Complex Challenges in Health Policy</b> <i>Chair: Robin Cantor</i></p> <p><b>10:30 AM M2-C.1</b> Bayesian network analysis comparing human health risk values across organizations <i>Holman E, Francis R, Gray G</i> <i>George Washington University, US Environmental Protection Agency</i></p> <p><b>10:50 AM M2-C.2</b> Causal modelling in regulatory contexts - the problem of structure altering interventions <i>MacGillivray BH</i> <i>Cardiff University</i></p> <p><b>11:10 AM M2-C.3</b> Analysis of barriers to clinical trials on drugs <i>Jessup A, Sertkaya A, Wong H</i> <i>US DHHS, Office of the Assistant Secretary for Planning and Evaluation</i></p> <p><b>11:30 AM M2-C.4</b> What drives physician testing for pain medication compliance-risk or reward? <i>Cantor RA, Meer S, Tyler C</i> <i>Berkeley Research Group</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 11</i> <b>M2-D Symposium: Aviation Security Risk Analysis</b> <i>Chair: Robin Dillon-Merril</i></p> <p><b>10:30 AM M2-D.1</b> Determining risk thresholds for TSA's risk based security <i>Cox A, KegelMeyer P, Bauman L</i> <i>Sandia National Laboratories</i></p> <p><b>10:50 AM M2-D.3</b> Commercial airline security: public perceptions and communication regarding TSA's expedited screening procedures <i>Burns WJ</i> <i>Decision Research</i></p> <p><b>11:10 AM M2-D.4</b> Application of MAU to obtain public trade-offs in aviation security screening <i>John RS, Nguyen K, Rosoff HR</i> <i>University of Southern California</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 12</i> <b>M2-E Food and Water Microbial Safety</b> <i>Chair: Peg Coleman</i></p> <p><b>10:30 AM M2-E.1</b> Is raw milk safe? Quantitatively assessing the impact of raw milk consumption changes in the US <i>Costard S, Groenendaal H, Zagmutt FJ</i> <i>EpiX Analytics LLC</i></p> <p><b>10:50 AM M2-E.2</b> Exploring disagreements regarding health risks of raw and pasteurized human and bovine milk <i>Coleman ME</i> <i>Coleman Scientific Consulting</i></p> <p><b>11:10 AM M2-E.3</b> Quantitative risk assessment of human toxoplasmosis through consumption of pork products in the US <i>Guo M, Lambertini E, Buchanan RL, Dubey JP, Hill D, Gamble HR, Jones J, Pradhan AK</i> <i>University of Maryland</i></p> <p><b>11:30 AM M2-E.4</b> Quantifying and modeling the effect of weather on the risk of survival of microorganisms on oranges following application of low microbial quality water <i>Mootian GK, Friedrich LM, Spann TM, Danyluk MD, Schaffner DW</i> <i>Rutgers University</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom D</i> <b>M2-F Symposium: Characterization of Occupational, Ecosystem and Environmental Risks from Unconventional Natural Gas Development</b> <i>Chair: John Adgate</i></p> <p><b>10:30 AM M2-F.1</b> Risks of unconventional shale gas development: characterization and governance <i>Small MJ, Stern PC</i> <i>Carnegie Mellon University</i></p> <p><b>10:50 AM M2-F.2</b> Overview of exposure risks for chemical and mineral exposures to workers during unconventional oil and gas extraction especially hydraulic fracturing <i>Esswein E</i> <i>NIOSH</i></p> <p><b>11:10 AM M2-F.3</b> Energy development, ecosystem services, and public health: a tamed or wicked problem? <i>Bourgeron PS, Campbell AS, Adgate JL</i> <i>University of Colorado</i></p> <p><b>11:30 AM M2-F.4</b> Linking ecosystem services and health risk assessment to address sustainability <i>Adgate JL, Bourgeron PB</i> <i>University of Colorado</i></p>
--	--	--	---	---	--

**Technical Program**

**Presenter's name is asterisked (\*) if other than first author.**

<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom E</i> <b>M2-G Symposium: Role of Expert Elicitation in Helping Make Better Risk Assessment Decisions: Mode of Action Debate Using Real Time Audience Input</b> <i>Chair: Sean Hays</i></p> <p><b>10:30 AM</b> <b>M2-G.1</b> Collective wisdom technology, queries and demographics <i>Kirman CR</i> <i>Summit Toxicology, LLP</i></p> <p><b>10:40 AM</b> <b>M2-G.2</b> Peer engagement and transparency in comparative WOE analysis for mode of action <i>Meek ME</i> <i>University of Ottawa</i></p> <p><b>10:55 AM</b> <b>M2-G.3</b> Weight of evidence of proposed modes of action for tetrachloroethylene-induced liver tumors <i>Deveau M</i> <i>University of Ottawa</i></p> <p><b>11:35 AM</b> <b>M2-G.4</b> Collective wisdom findings and discussion <i>Hays SM</i> <i>Summit Toxicology</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom F</i> <b>M2-H Symposium: Understanding and Regulating Risks from Perchlorate</b> <i>Chair: Gail Charnley</i></p> <p><b>10:30 AM</b> <b>M2-H.1</b> Impact of multiple goitrogen exposures during pregnancy <i>Pearce EN</i> <i>Boston University School of Medicine</i></p> <p><b>10:50 AM</b> <b>M2-H.2</b> Concomitant exposure to multiple goitrogens: implications for regulation <i>Steinmans C</i> <i>UC Berkeley School of Public Health</i></p> <p><b>11:10 AM</b> <b>M2-H.3</b> PBPK evaluation of the combined effect of goitrogens and iodine from food <i>Lewandowski T, Peterson M</i> <i>Gradient</i></p> <p><b>11:30 AM</b> <b>M2-H.4</b> Iodine supplementation and drinking-water perchlorate mitigation <i>Peterson M, Lewandowski T, Charnley G*</i> <i>Gradient, Health Risk Strategies LLC</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 14</i> <b>M2-I Household Exposures</b> <i>Chair: Richard Reiss</i></p> <p><b>10:30 AM</b> <b>M2-I.1</b> Residential tap water sampling for disinfectant byproducts and atrazine to assess exposure and human health risk <i>Parvez S, Sundararajan M</i> <i>Indiana University, Fairbanks School of Public Health</i></p> <p><b>10:50 AM</b> <b>M2-I.2</b> The effect of disinfection by-product exposures on risk of birth defects <i>Wright JM, Rivera-Núñez ZZ</i> <i>US EPA</i></p> <p><b>11:10 AM</b> <b>M2-I.3</b> Cleaning product ingredient safety initiative: exposure assessment for ingredients <i>Williams ES, Ciarlo M, Horne C, Greggs B, DeLeo P, Brooks BW</i> <i>Baylor University</i></p> <p><b>11:30 AM</b> <b>M2-I.4</b> Validation of a pesticide dietary exposure model with biomonitoring data - case study for chlorpyrifos <i>Reiss R, Tucker K, Weidling R</i> <i>Exponent</i></p>	<p><b>10:30 AM - 12:10 PM</b> <i>Governors Square 15</i> <b>M2-J Risk Communication and Trust</b> <i>Chair: Michael Siegrist</i></p> <p><b>10:30 AM</b> <b>M2-J.1</b> Arsenic and old mines: trust in risk communication about the giant mine remediation plan <i>Jardine C, Driedger M, Furgal C</i> <i>University of Alberta, University of Manitoba and Trent University</i></p> <p><b>10:50 AM</b> <b>M2-J.2</b> Does trust or distrust persevere over repeated events?: An extension of trust asymmetry research to homogeneous event sequences involving management of nano-medicines <i>Johnson BB</i> <i>Decision Research</i></p> <p><b>11:10 AM</b> <b>M2-J.3</b> Public perceptions of expert disagreement: expert incompetence or a complex and random world? <i>Dieckmann NF, Johnson B, Gregory R, Mayorga M, Han PKJ, Slovic P</i> <i>Oregon Health &amp; Science University, Decision Research, University of Oregon, Maine Medical Center</i></p> <p><b>11:30 AM</b> <b>M2-J.4</b> Citizen priorities for environmental hazards: understanding rankings and exploring their origins in risk perception <i>Binder AR, Berglund EZ</i> <i>North Carolina State University</i></p> <p><b>11:50 AM</b> <b>M2-J.5</b> Breaking the barriers: communication networks for risk reduction in technological disasters <i>Zimmerman R</i> <i>New York University</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 16</i> <b>M2-K Symposium: Risk Communication and Energy</b> <i>Chair: Bonnie Ram</i></p> <p><b>10:30 AM</b> <b>M2-K.1</b> Communicating risks and benefits of shale gas development ('fracking') <i>Evensen D, Stedman R</i> <i>Cornell University</i></p> <p><b>10:50 AM</b> <b>M2-K.2</b> A new approach to 'public acceptability' and the risks of energy system change <i>Demskei CC, Pidgeon NF, Parkhill KP, Butler C, Spence A</i> <i>Cardiff University</i></p> <p><b>11:10 AM</b> <b>M2-K.3</b> Public opinion on energy development: the interplay of issue framing, top-of-mind associations, and political ideology <i>Clarke CE, Evensen DT, Jacquet JB, Schult JP, Boudet HS, Hart PS, Stedman RC</i> <i>George Mason University, Cornell University, South Dakota State University, Oregon State University, University of Michigan</i></p> <p><b>11:30 AM</b> <b>M2-K.4</b> Information divergence: the disconnection of reporting nuclear risk and crisis by the news media in the US <i>Chavez M, Oshita T</i> <i>Michigan State University</i></p>
---	--	---	---	---

**Don't forget to attend the Specialty Group Meeting of your choice  
12:05 - 1:30 pm (see page 4 for details)  
after picking up your box lunch at the SRA Registration Desk**

**1:30 - 3:00 PM**  
*Plaza Court 1*  
**M3-A Symposium:**  
**Sharpening 21st Century Science to Support Risk Assessment and Inform Regulatory Decision-Making**  
*Chair: Jack Fowle*

**1:30 PM M3-A.1**  
 Shaping 21st-century science to support risk assessment and inform regulatory decision-making introduction, opportunities and challenges  
*Fowle JR III*  
*Science to Inform, LLC*

**1:50 PM M3-A.2**  
 Regulatory application - promise and perils  
*Fitzpatrick SC*  
*FDA*

**2:10 PM M3-A.3**  
 Legal/regulatory implications of the new science  
*Elliott ED*  
*Covington and Burling, LLP*

**2:30 PM M3-A.4**  
 Using adverse outcome pathways for regulatory applications  
*Willett CE, Antezak P, Burgoon L, Falciani F, Gutsell S, Hodges G, Kienzler A, Knapen D, McBride M, Perkins EJ*  
*The Humane Society of the United States*

**1:30 - 3:10 PM**  
*Plaza Court 6*  
**M3-B Symposium:**  
**Foundational Issues I**  
*Chair: Terje Aven*  
**1:30 PM M3-B.1**  
 A new SRA glossary for risk terminology  
*Aven T*  
*University of Stavanger, Norway*

**1:50 PM M3-B.2**  
 Defining emerging risk  
*Flage R, Aven T*  
*University of Stavanger*

**2:10 PM M3-B.3**  
 Can we define a concept of 'risk tolerance'?  
*Bouder F*  
*Maastricht University*

**2:30 PM M3-B.4**  
 Is the weight of evidence approach in risk assessment according to REACH an application of a general perspective on risk?  
*Sablin U, Vareman N*  
*Lund University*

**2:50 PM M3-B.5**  
 What is the difference between risk-based, evidence-based and knowledge-based decision making?  
*Vareman N, Sablin U*  
*Lund University*

**1:30 - 3:00 PM**  
*Governors Square 10*  
**M3-C Managing Risk for Energy Infrastructure Systems**  
*Chair: Stanley Levinson*  
**1:30 PM M3-C.1**  
 Systems thinking in a regulated world  
*Dister CJ, Wargo RK, Cunniff TM*  
*ReliabilityFirst*

**1:50 PM M3-C.3**  
 Systems risk assessment of a Tokyo Bay oil storage terminal  
*Deng Q, Baecher GB, Marr WA*  
*University of Maryland*

**2:10 PM M3-C.4**  
 Evaluating induced seismicity and underground injection wells  
*Tymbak MP, Flevelling SA*  
*Gradient*

**2:30 PM M3-C.5**  
 Is it always windy somewhere? Occurrence of low-wind-power events over large areas  
*Rose SR, Handschy M, Apt J*  
*Carnegie Mellon University*

**1:30 - 3:00 PM**  
*Governors Square 11*  
**M3-D Symposium: Risk of Wildlife, Fishery, Poaching and Improving Anti-Poaching Security Strategies**  
*Chair: Tambe Milind*

**1:30 PM M3-D.1**  
 Effects of risk perceptions about environmental insecurity on exploitation of natural resources: insight from Madagascar  
*Gore ML, Ratsimbazafy JH, Lute ML, Rajaonson A*  
*Michigan State University*

**1:50 PM M3-D.3**  
 Of wildlife, fishery poaching, and improving anti-poaching security strategies  
*Tambe M*  
*US Coast Guard*

**2:10 PM M3-D.4**  
 Decision aids for protecting wildlife and fisheries: using algorithmic and behavioral game theory  
*Tambe M, Ford B, Nguyen T, Le-meux A*  
*University of Southern California*

**1:30 - 3:00 PM**  
*Governors Square 12*  
**M3-E Symposium:**  
**Uncertainty in Microbial Risk Assessment Part I**  
*Chair: Moez Sanaa*

**1:30 PM M3-E.1**  
 Dealing with uncertainties in risk assessment: uncertainty typology and NUSAP  
*Bouwknegt M, Van der Sluijs JP, Evers EG, Havelaar AH*  
*National Institute for Public Health and the Environment*

**1:50 PM M3-E.2**  
 How to express the uncertainty? Application to risk ranking  
*Sanaa M*  
*French Agency for Food, Environmental and Occupational Health & Safety*

**2:10 PM M3-E.3**  
 Reduction of uncertainty in Middle Eastern Respiratory Syndrome Coronavirus (MERS, MERS-CoV) exposure assessments by direct survey of blood donors  
*Walderhaug MO, Whitaker B, Hinkins S, Anderson SA*  
*US FDA, AABB and NORC*

**2:30 PM M3-E.4**  
 Uncertainty analysis and its use at the food safety and inspection service  
*Ebel E*  
*Food Safety and Inspection Service, United States Department of Agriculture*

**1:30 - 3:00 PM**  
*Plaza Ballroom D*  
**M3-F Roundtable:**  
**Discussion of Regulation, Policy, and Community Issues Relating to Hydraulic Fracking**  
*Chair: John Graham*  
*Panelists:*

**Risk Perception:** *Ragnar Lofstedt, King's College London*

**Risk Governance:** *Mitch Small, Carnegie Mellon University*

**Industry Perspective:** *Amy Emmert, American Petroleum Institute*

**NGO Perspective:** *Scott Anderson, Environmental Defense Fund*

**Regulatory Perspective:** *Tiffany Bredfeldt, Texas Commission on Environmental Quality*

Monday Sessions Sponsored by Specialty Groups			
M2-E	MRASG	M3-K	RCSG
M3-E	MRASG	M4-E	MRASG
M3-G	ENMSG	M4-H	DRSG
M3-H	DRSG	M4-I	OHSSG
M3-I	OHSSG	M4-J	EBASG, RCSG
M3-J	SBCA, RCSG		



<p><b>1:30 - 3:10 PM</b> <i>Plaza Ballroom E</i> <b>M3-G Symposium:</b> <b>Assessing the Risks of Engineered Nanomaterials: Lessons from Combustion</b> <i>Chair: Christian Beaudrie</i></p> <p><b>1:30 PM</b>                      <b>M3-G.1</b> Nanoparticles, respiratory-based injury and the role of oxidant stress <i>Pinkerton KE, Carosino CM, Plummer LE, Madl AK</i> <i>University of California, Davis</i></p> <p><b>1:50 PM</b>                      <b>M3-G.2</b> Lessons from combustion particle exposure assessment for engineered nanoparticle exposure assessment <i>Breyse PN, Rule A</i> <i>Johns Hopkins University</i></p> <p><b>2:10 PM</b>                      <b>M3-G.3</b> Studies with diesel exhaust particulate: implications for the potential human health hazards of engineered nanoparticles <i>Hesterberg TH, Bunn WB, Berg M, Scribner K, Harrill J, Goad P</i> <i>Center for Toxicology and Environmental Health, Bunn and Associates Occupational Health Consulting</i></p> <p><b>2:30 PM</b>                      <b>M3-G.4</b> Sustainable management of nanomaterial containing wastes <i>Boxcall ABA, Beaudrie C, Bruce N, Carlander D, Carter LJ, Chaudhry Q, Diamond S, Doudrick K, Dudkiewicz A, Foss Hansen S, Ghosal S, Hodson S, Lambert S, Lazgareva A, Lynch I, Mathuru A, Nathaniel J, Rudd M, Spurgeon D, Tellenbach M, Tiede K</i> <i>Compass Resource Management Ltd</i></p> <p><b>2:50 PM</b>                      <b>M3-G.5</b> Nanotechnology: from harmful to helpful? <i>Marchant G</i> <i>Arizona State University</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Plaza Ballroom F</i> <b>M3-H Symposium:</b> <b>Component Methods to Assess Chemical Mixtures Risks</b> <i>Co-Chairs: Raymond Yang, Glenn Rice</i></p> <p><b>1:30 PM</b>                      <b>M3-H.1</b> Current controversies in the risk assessment of chemical mixtures <i>Hertzberg RC</i> <i>Biomathematics Consulting and Emory University</i></p> <p><b>1:50 PM</b>                      <b>M3-H.2</b> Considerations for analyzing risks posed by mixtures of phthalates <i>Teuschler LK</i> <i>LKT &amp; Associates</i></p> <p><b>2:10 PM</b>                      <b>M3-H.3</b> Real-world chemical mixtures in ambient groundwater of the United States <i>Tocalino PL, Norman JE, Skach KA</i> <i>US Geological Survey</i></p> <p><b>2:30 PM</b>                      <b>M3-H.4</b> Examining relative potencies of chemical mixture components from in vivo studies using Benchmark Dose Software <i>Swartout JC, Rice G, Teuschler LK</i> <i>US EPA</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Governors Square 14</i> <b>M3-I Symposium: Assessing the Worst Risks First: Bringing QRA to the Problem of Workplace Toxicants</b> <i>Chair: Adam Finkel</i></p> <p><b>1:30 PM</b>                      <b>M3-I.1</b> A structured plan for seeking consensus on inference options for occupational risk assessment <i>Finkel AM</i> <i>University of Pennsylvania Law School</i></p> <p><b>1:50 PM</b>                      <b>M3-I.2</b> When using a risk based approach to setting OELs will work and when it won't <i>Paustenbach DJ</i> <i>Cardno ChemRisk</i></p> <p><b>2:10 PM</b>                      <b>M3-I.3</b> Hierarchy of OELs—a new organizing principle for risk assessment <i>Maier, A</i> <i>The Environmental Quality Organization, LLC</i></p> <p><b>2:30 PM</b>                      <b>M3-I.4</b> Risk Lessons Learned <i>Jaycock MA, Armstrong T*</i> <i>Jaycock-Associates LLC, TWA8HR Occupational Hygiene Consulting LLC</i></p>	<p><b>1:30 - 3:10 PM</b> <i>Governors Square 15</i> <b>M3-J Symposium: Risk, Perception, and Response, Part I</b> <i>Chair: Rich Canady</i></p> <p><b>1:30 PM</b>                      <b>M3-J.1</b> Risk assessment of risk perceptions: health risk assessment tools for the effects of information flow <i>Canady R</i> <i>Center for Risk Science Innovation and Application, ILSI Research Foundation</i></p> <p><b>1:50 PM</b>                      <b>M3-J.2</b> Reducing over-valuation of risk regulations with highly uncertain benefits <i>Cox T</i> <i>Cox Associates and University of Colorado</i></p> <p><b>2:10 PM</b>                      <b>M3-J.3</b> Risk literacy and transparent risk communication in health and medicine <i>Garvia-Retamero R, Cokely ET</i> <i>University of Granada, Max Planck Institute</i></p> <p><b>2:30 PM</b>                      <b>M3-J.4</b> Value of improved hurricane warnings: risk information and factors affecting stated preferences <i>Lazo JK, Bostrom A, Morss RE, Demuth JL, Lazrus H</i> <i>National Center for Atmospheric Research</i></p> <p><b>2:50 PM</b>                      <b>M3-J.5</b> Taking advantage of diffusion effects in a network to increase effectiveness of risk communication <i>Togo D</i> <i>Toulouse School of Economics</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Governors Square 16</i> <b>M3-K Symposium: Interdisciplinary Perspectives on Climate Change</b> <i>Chair: Bob O'Connor</i></p> <p><b>1:30 PM</b>                      <b>M3-K.1</b> Mindsets and climate change risk perceptions and action intentions <i>Böhm G, Bostrom A, Hanss D, OConnor RE, Scharles T</i> <i>University of Bergen, University of Washington, National Science Foundation</i></p> <p><b>1:50 PM</b>                      <b>M3-K.2</b> Climate change, weather, and perception of the risk time horizon <i>Trumbo CW, Marlatt HL</i> <i>Colorado State University</i></p> <p><b>2:10 PM</b>                      <b>M3-K.3</b> Interdisciplinary approach to drought risks in the context of social conflict and climate change <i>Towler EL, Lazrus H, PaiMazumder D</i> <i>National Center for Atmospheric Research</i></p> <p><b>2:30 PM</b>                      <b>M3-K.4</b> Extreme heat risk and human health <i>Wilhelmi OW, Hayden MH, Boehnert J, Banerjee D, Gower S</i> <i>NCAR</i></p>
--	---	---	--	--

3:30 - 5:00 PM	3:30 - 5:10 PM	3:30 - 5:10 PM	3:30 - 5:00 PM	3:30 - 5:10 PM	3:30 - 5:00 PM
<i>Plaza Court 1</i>	<i>Plaza Court 6</i>	<i>Governors Square 10</i>	<i>Governors Square 11</i>	<i>Governors Square 12</i>	<i>Plaza Ballroom D</i>
<b>M4-A Symposium: Development and Risk</b>	<b>M4-B Symposium: Cost of Illness Studies and Beyond</b>	<b>M4-C Navigating Shifting Regulatory Landscapes</b>	<b>M4-D Symposium: Cyber Security and Privacy Risk</b>	<b>M4-E Symposium: Uncertainty in Microbial Risk Assessment Part II</b>	<b>M4-F Fracking Risks and Perception</b>
<i>Chair: Virna Gutierrez</i>	<i>Chair: Kevin Brand</i>	<i>Chair: Rick Reiss</i>	<i>Chair: Robin Dillon-Merrill</i>	<i>Chair: Mark Powell</i>	<i>Chair: Otwin Renn</i>
<b>3:30 PM M4-A.1</b>	<b>3:30 PM M4-B.1</b>	<b>3:30 PM M4-C.1</b>	<b>3:30 PM M4-D.1</b>	<b>3:30 PM M4-E.1</b>	<b>3:30 PM M4-F.1</b>
Demanded compensation for environmental risks: it all depends on the economic sector <i>Gutierrez VV, Cifuentes LA, Bronfman NC</i> <i>Universidad Diego Portales, Pontificia Universidad Catolica de Chile</i>	Estimating health expenditure by disease and injury, age, and sex, for the United States, 1996 - 2010 <i>Baral R, Bui A, Bulchis A, Decenso B, Gabert R, Joseph J, Lavado R, Nightingale N, Tobias M, Dieleman J*</i> <i>Institute for Health Metrics and Evaluation, University of Washington</i>	Regulatory and quasi-regulatory activity without OMB and cost-benefit review <i>Graham JD, Liu CR</i> <i>Indiana University</i>	Near-misses and the challenges for cyber security decision making <i>Dillon-Merrill RL</i> <i>Georgetown University</i>	Separation of uncertainty and variability in microbial food safety risk assessment: what's new after 20 years? <i>Pouillot R</i> <i>Food and Drug Administration</i>	Human health-based framework for evaluating the safety of drilling and fracturing fluid additives <i>Wikoff DS, Fitzgerald LF, Haws LC, Harris M</i> <i>ToxStrategies, Inc.</i>
<b>3:50 PM M4-A.4</b>	<b>3:50 PM M4-B.2</b>	<b>3:50 PM M4-C.2</b>	<b>3:50 PM M4-D.2</b>	<b>3:50 PM M4-E.2</b>	<b>3:50 PM M4-F.2</b>
Willingness to pay to avoid environmental impacts of electricity generation <i>De La Maza C, Aravena C*, Cifuentes L, Rizzi L, Bronfman N</i> <i>Fundacion Chile</i>	The economic burden of illness in Canada <i>Diener A</i> <i>Public Health Agency of Canada</i>	Genetic biomarkers of risk in toxic tort litigation <i>Marchant GE, Hartley K*</i> <i>Arizona State University and LSP Group LLC</i>	Modeling values and trade-offs of cybersecurity stakeholders <i>Rosoff H, John RS, von Winterfeldt D</i> <i>University of Southern California</i>	Considering variability and uncertainty in food safety risk assessment <i>Powell M</i> <i>US Department of Agriculture</i>	Social responses to unconventional fossil fuels (fracking) <i>Renn O</i> <i>University of Stuttgart</i>
	<b>4:10 PM M4-B.3</b>	<b>4:10 PM M4-C.3</b>	<b>4:10 PM M4-D.3</b>	<b>4:10 PM M4-E.3</b>	<b>4:10 PM M4-F.3</b>
	Health measures and health and environmental policy, how does what we measure fit with what we need to measure? <i>Hoffmann SA</i> <i>USDA Economic Research Service</i>	Risk informed regulatory decisions - a review of case law in Canada <i>Sridharan S, Mangalam S, Reid D, Mulamootil L, Bharati R</i> <i>Technical Standards and Safety Authority</i>	Surfacing risk in the internet of everything <i>Frye FEH</i> <i>The MITRE Corporation</i>	Dose-response for vCJD transmitted through blood transfusion <i>Yang H, Huang Y, Gregori L, Anderson SA, Asher DM</i> <i>Food and Drug Administration</i>	Human health risk evaluation for hydraulic fracturing fluid additives <i>Flewelling SA, Sharma M</i> <i>Gradient</i>
	<b>4:30 PM M4-B.4</b>	<b>4:30 PM M4-C.4</b>	<b>4:30 PM M4-D.4</b>	<b>4:30 PM M4-E.4</b>	<b>4:30 PM M4-F.4</b>
	Estimating the disease and economic burden of arsenic in private wells in the United States <i>Greco SL, Belova A, Haskell JM, Firlie B, Stedje G, Hunt DR</i> <i>Abt Associates</i>	Recalibrating risk: crises, perceptions and regulatory change <i>Wiener JB, Balleisen E, Benneer L, Kraviec K</i> <i>Duke University</i>	A prescriptive multiattribute model of user preferences for conflicting objectives related to cyber security risk <i>Nguyen KD, Rosoff H, John RS</i> <i>University of Southern California</i>	Development of a 2D simulation based method for dose response model optimization for uncertain pathogens <i>Weir MH</i> <i>Temple University</i>	Role of cognitive biases in perception of risks related to fracking <i>Jovanovic AS, Renn O, Schneider R</i> <i>ZIRIUS University of Stuttgart</i>
	<b>4:50 PM M4-B.5</b>	<b>4:50 PM M4-C.5</b>		<b>4:50 PM M4-E.5</b>	
	Health expectancy versus health gap measures: what difference do at-risk population dynamics make? <i>Brand K</i> <i>University of Ottawa</i>	The informal European parliamentary working group on risk: next steps <i>Lofstedt R</i> <i>King's College London</i>		A spatiotemporal informatics framework for modeling dengue fever risk <i>Huang TL, Yu HL, Lin YC, Lee CH</i> <i>National Cheng Kung University</i>	

**3:30 - 5:10 PM**  
*Plaza Ballroom E*  
**M4-G AOP for 21st Century Risk Assessment**  
*Chair: Richard Becker*

**3:30 PM M4-G.1**  
 Increasing scientific confidence in AOPs: tailoring the Bradford Hill considerations for evaluating weight of evidence  
*Becker RA, Ankeley G, Barton-Maclaren T, Kennedy S, Meek ME, Sachana M, Segner H, Edwards S, Villeneuve D, Watanabe H*  
*American Chemistry Council*

**3:50 PM M4-G.2**  
 A quantitative weight of evidence model for assessing Adverse Outcome Pathways (AOPs)  
*Linkov I, Ankeley G, Barton-Maclaren T, Kennedy S, Meek ME, Sachana M, Segner H, Edwards S, Villeneuve D, Watanabe H*  
*US Army Corps of Engineers*

**4:10 PM M4-G.3**  
 The adverse outcome pathway for hepatic toxicity and tumorigenesis in rodents by sustained activation of the aryl hydrocarbon receptor  
*Budinsky RA, Simon T, Patlewicz G*  
*Dow Chemical Company*

**4:30 PM M4-G.4**  
 Integration of environmental and community risk factors into an adverse outcome pathway: an example with inorganic arsenic  
*Powers CM, Lee JS, Joca L, Sacks J, Jones R, Turley A, Mendez W, Cowden J, Sams R*  
*US EPA, ORISE, ICF International, NC, Washington DC*

**4:50 PM M4-G.5**  
 Applying mechanistic modelling to human health risk assessment: a skin sensitisation case study  
*MacKay C, Cubberley R, Dhadra S, Gellatly N, Pendlington R, Pickles J, Saib O, Sheffield D, Stark R, Maxwell G*  
*Unilever - Safety and Environmental Assurance Centre*

**3:30 - 5:10 PM**  
*Plaza Ballroom F*  
**M4-H Symposium: CRA Methods for EPA CRA Guidelines**  
*Chair: Beth Brewer*

**3:30 PM M4-H.1**  
 Cumulative risk assessment for pesticides: lessons learned on scoping and problem formulation  
*Lowit AB, Smith CW, Perron MM, Wilbur D, Holman ES\**  
*Environmental Protection Agency*

**3:50 PM M4-H.2**  
 Phthalates case study  
*Anitole K, Aylward L, Lorber M\*, Blake-Hedges L, Brewer B, Olsen M*  
*US EPA*

**4:10 PM M4-H.3**  
 Cumulative risk assessment for combined air toxics and criteria pollutants  
*MacDonell M, Hertzberg R, Chang YS, Rice G, Yurk J, Martin L*  
*Argonne National Laboratory, US EPA*

**4:30 PM M4-H.4**  
 Trying to do it all for cumulative risk assessment: the feasibility of the Multi-criteria Integrated Resource Assessment (MIRA) approach  
*Stahl C, Martin L, Brewer B*  
*US Environmental Protection Agency*

**4:50 PM M4-H.5**  
 Planning, scoping, and problem formulation for community-based cumulative risk assessments  
*Barzyk TM, Martin L, O'Shea S*  
*US Environmental Protection Agency*

**3:30 - 5:10 PM**  
*Governors Square 14*  
**M4-I Symposium: Retrospective and Prospective Risk Characterization, Application and Communication**  
*Chair: Fred Boelter*

**3:30 PM M4-I.1**  
 Hiding in plain sight: analyzing a significant, yet previously unidentified workplace exposure risk during hydraulic fracturing  
*Esswein EJ, Snawder JE, King B, Breitenstein M, Alexander-Scott M, Kiefer M*  
*National Institute for Occupational Safety and Health (NIOSH)*

**3:50 PM M4-I.2**  
 Application of hazard and control banding concepts and risk matrices to prospective and retrospective chemical risk assessments  
*Altemose BA*  
*SafeBridge Consultants, Inc*

**4:10 PM M4-I.3**  
 Reconstructing exposures for the semiconductor industry to assess risks of hematological malignancies  
*Torres CW*  
*ENVIRON International Corporation*

**4:30 PM M4-I.4**  
 Physiology of risk: grounding retrospective risk characterization in terms that resonate with various stakeholders  
*O'Reilly MV*  
*SUNY School of Public Health at Albany and ARLS Consultants, Inc.*

**4:50 PM M4-I.5**  
 Prospective and retrospective risk characterizations: obverse and reverse accounts  
*Boelter FB*  
*ENVIRON International*

**3:30 - 5:00 PM**  
*Governors Square 15*  
**M4-J Symposium: Risk, Perception and Response, Part II**  
*Chair: Jeff Lago*

**3:30 PM M4-J.2**  
 Workers' perceptions of risk and occupational injuries  
*Galizzi M, Tempesti T*  
*University of Massachusetts Lowell*

**3:50 PM M4-J.3**  
 Extrapolating understanding of food risk perceptions to emerging food safety cases  
*Kaplan G, Fischer ARH, Frever LJ*  
*University of Leeds, Wageningen University, and Newcastle University*

**4:10 PM M4-J.4**  
 The antecedents of enhancing behavior following mandatory motorcycle helmet legislation  
*Lee J*  
*East Carolina University*

**4:30 PM M4-J.6**  
 Communicating public health advice during a chemical attack involving sarin: results from a live decontamination exercise in the UK  
*Rogers MB, Krieger K, Jones E, Amlot R*  
*King's College London, Public Health England*

**3:30 - 5:00 PM**  
*Governors Square 16*  
**M4-K Risk Communication and Climate Change**  
*Chair: Craig Trumbo*

**3:30 PM M4-K.1**  
 Public understanding of ocean acidification and implications for risk communication  
*Pidgeon NF, Capstick SB, Corner A, Pearson P, Spence E*  
*Cardiff University*

**3:50 PM M4-K.2**  
 The influences of symbolic and practical cues on climate change decisions  
*Wong-Parodi G, Fischhoff B*  
*Carnegie Mellon University*

**4:10 PM M4-K.3**  
 From here to there, her to me: using psychological distance to explore perceptions of climate change  
*Yang ZJ, Rickard LN*  
*SUNY at Buffalo*

**4:30 PM M4-K.4**  
 Untangling the various effects of psychological distance  
*Zwicker A, Wilson RS*  
*Michigan State University, The Ohio State University*

6:00-8:00 PM

Plaza Ballroom ABC

P Poster Session

**Decision Analysis and Risk**

**P.1** Risk perception in determining scientific problem choices

*Sarathchandra D*  
*University of Idaho*

**P.3** The risk management workspace for geospatial display of risk analysis data

*Arimoto CW, Howard PM, Lepofsky M, Randolph MA*  
*ABSG Consulting Inc.*

**P.5** Development and application of simplified damage charts for chemical containers

*Howard PM, Kuck J, Taylor T, Shope R*  
*ABS Consulting Inc.*

**P.6** Improving risk prediction models using PGA, LASSO and SVM in prostate cancer prediction

*Pirasteh F, Liu J, Sanei M*  
*Pukyong National University*

**P.7** Multidimensional injury pattern analysis: a study of children's product injury in Japan

*Zhang K, Mikami Y*  
*Henan Polytechnic University*

**P.8** Health and quality of life of people living near a chemical industrial area

*Daniau C, Wagner V, Salvio C, Bérat B, Stempflet M, Kermarec F, Ricoux C, Empeur-Bissonnet P*  
*Institute of Public Health (InVS)*

**P.9** Alternative approaches for evaluating and providing risk context for water contaminants with minimal toxicity data

*Goeden H, Suchomel A, Gavrelis N, Bertelsen L, Heiger-Bernays W, Hattis D*  
*Minnesota Department of Health, Eastern Research Group, Inc., Boston University School of Public Health*

**P.11** The value of information for managing contaminated sediments

*Bates ME, Sparrevik M, Linkov I*  
*US Army Corps of Engineers, Engineer Research and Development Center*

**P.13** Value of information analysis on the tiered occupational exposure assessment for organic solvent in Japan

*Yamaguchi H, Inai T, Tokai A*  
*Osaka University*

**P.14** The Risk Assessment Information System (RAIS) informative tools addressing hydraulic fracturing

*Galloway LD, Dolislager FG, Stewart DJ, Tucker KB*  
*University of Tennessee, Knoxville*

**Dose Response**

**P.15** Hormesis = Pre-conditioning = Adaptive Response

*Calabrese EJ, Mothersill C*  
*University of Massachusetts Amherst*

**P.16** The use of cross-species and cross-disciplinary evidence in support of causality determinations in the U.S.

Environmental Protection Agency's integrated science assessment for lead  
*Lassiter MG, Kirrane E, Patel MM, Owens EO, Madden MK, Richmond-Bryant J, Hines E, Davis A, Vinikoor-Imler L, Dubois JJ*  
*US Environmental Protection Agency, Oak Ridge Institute for Science and Education Research Participation Program, Critical Path Services LLC*

**P.17** Application of inhalation toxicology concepts to risk and consequence assessments

*Hawkins BE, Winkel DJ, Wilson PH, Whittaker IC, Gooding RE, Skinner L, Cox JA*  
*Battelle Memorial Institute, Department of Homeland Security Chemical Security Analysis Center*

**P.18** Development of an interspecies nested dose response model for mycobacterium avium subspecies paratuberculosis

*Breuninger K, Weir MH*  
*Temple University*

**P.19** Potential health risks associated with energy drink consumption and characterization of individual susceptibility factors

*Banducci AM, Nelson ML, Novick R, Tvermoes BT*  
*Cardno ChemRisk*

**P.20** Oral two generation reproductive and prenatal developmental toxicity studies of Tetrabromobisphenol A (TBBPA) in Cd Sprague-Dawley rats

*Dourson M, Kacem S, Cope R*  
*Toxicology Excellence for Risk Assessment; Institute of Population Health - University of Ottawa, Australian Government Regulatory Agency*

**P.21** Study design and physiochemical data considerations for a subacute inhalation study of a UVCB

*Dube EM, Sullivan K, Brynczka C*  
*Gradient*

**P.22** Application of the margin of exposure approach to benzene, a tobacco smoke toxicant

*Fiebelkorn SA, Cunningham FH, Dillon D, Meredith C*  
*British American Tobacco, UK*

**P.23** The assessment of air pollution exposure and paracetamol use related to children allergic disease: a population-based cohort study in Taiwan

*Ho WC, Lin MH, Fan KC, Wu TT, Kao HC, Chen PC, Lin CC, Wu TN, Sung FC, Lin RS*  
*China Medical University*

**P.24** High throughput dose response analysis reveals unique mode of toxicity of Cu nanoparticles

*Kameteerawat C, Chang C, Liu R, Godwin H*  
*University of California Center for Environmental Implications of Nanotechnology (UC-CEIN)*

**P.25** Public health implications of the effect of covariates on food allergen dose response model

*Kwegyir-Afful EK, Zhu J, Brookmire L, Lucchioli S*  
*US Food and Drug Administration*

**P.26** Naphthalene research program: working hypotheses and research results

*LeHunay AP, Sum T-J, Beatty P, Reitman F*  
*Naphthalene Council*

**P.27** A probabilistic approach to estimating acrolein risk

*Lynch ML, Hattis D*  
*Abt Associates, Inc.*

**P.28** Continuous-time particle tracking for modeling the migration of 90Sr released from superficial nuclear disposal facilities

*Tosoni E, Cadini F, Zio E*  
*Politecnico Di Milano*

**P.29** Impact of air pollution and statins use on stroke among hypertension patients: a population-based cohort study in Taiwan

*Wu TT, Pan ZC, Ho WC, Lin MH, Fan KC, Chen PC, Lin CC, Wu TN, Sung FC, Lin RS*  
*China Medical University*

**P.31** Drinking water risk assessment in the developing countries

*Njan A*  
*University of Ilorin, Nigeria*

**P.35** Heavy metals in sections of the Nile River

*El-Tawil O*  
*Cairo University, Egypt*

**P.36** Distributions of autocorrelated first order kinetics: cumulative dose-response assessment

*Engelhardt JD*  
*University of Miami*

**Ecological Risk Assessment**

**P.37** Environmental risk comparison of laboratory photo-induced toxicity benchmark values to field levels of ultraviolet radiation and photo-reactive contaminants

*Willis AM, Oris JT*  
*Toxicology Excellence for Risk Assessment; Miami University*

**Economics and Benefit Analysis**

**P.39** Assessment of risk mitigation measures effectiveness: application to natural risks in mountains

*Carladous S, Tacnet JM, Batton-Hubert M, Curt C  
Irstea - Snow Avalanche Engineering and Torrent Control Research Unit*

**P.40** Cost-benefit analysis of the countermeasures for agricultural products against contamination with radioactive substances

*Oka T  
Fukui Prefectural University*

**P.41** Disaggregating the costs to human health from changing temperatures in the US

*Schwarber A, Calvin K, Green-Barnes J, Henning R, Puett R, Saptoka A, Gilmore EA  
Joint Global Change Research Institute and University of Maryland*

**P.43** SEA (socio-economic analysis) system for replacement of hazard chemical substances in Korea

*Lee YJ, Lee GW, Yang JY, Lee HS, Shin DC  
Yonsei University College of Medicine*

**P.44** Indirect cost of damages to underground infrastructures due to excavation

*Peignier I, De Marcellis-Warin N  
CIRANO and Ecole Polytechnique de Montréal*

**P.45** Efficiency, equity and environmental protection: a real world case from standard setting for thermal power plants

*Cifuentes LA, de la Maza C, Donoso F  
P. Universidad Católica de Chile*

**Engineering and Infrastructure**

**P.47** New statistical approaches to modeling post-earthquake fire risk using data from the Tohoku, Japan earthquake and tsunami

*Anderson D, Davidson RA, Himoto K, Scamthorn C  
University of Delaware*

**P.48** Risk perception of urban and transportation systems and its impacts on travel patterns and residential location preferences

*Chikaraishi M, Fujimura A  
Hiroshima University*

**P.49** Contrasting electricity generation methods for disaster resilience

*Cavilliez AL, Fischer M  
Stanford University*

**P.50** Identifying interdependent issues and resource limitations for modeling post-earthquake recovery duration of critical infrastructures: the case of 3.11 earthquake in Japan

*Yuyama A, Kajitani Y  
Central Research Institute of Electric Power Industry*

**P.51** Researching causes in 2003 Algiers (Algeria) earthquake disaster: a new multidisciplinary approach to learn lessons from disasters (Forensic Investigations of Disasters (FORIN)):

*Benouar D  
University of Science and Technology Houari Boumediene (USTHB)*

**P.52** Sectioning of transport pipelines for liquid hydrocarbons based on the minimization of costs related to environmental remediation as a consequence of accidental releases

*Cano NA, Fontecha JE, Muñoz F  
Universidad de los Andes*

**Exposure Assessment**

**P.53** A probabilistic analysis of seafood consumption in the Gulf of Mexico

*Charles MKS, Brumback B, Kane AS, Stuchal LD  
University of Florida, Emerging Pathogens Institute and the Center for Environmental and Human Toxicology*

**P.54** Air dispersion modeling by using Bayesian statistics with Markov Chain Monte Carlo simulation to estimate an emission rate from a complex of emission sources

*Chuang YC, Wu KY  
National Taiwan University*

**P.55** Timing is everything. Short-term action levels for TCE in indoor air

*Gray DL, Vaughan PH  
Stantec Consulting Services, Inc.*

**P.56** Exposure assessments for contaminants of emerging concern

*Greene CW, Shubat PJ  
Minnesota Department of Health*

**P.57** A comprehensive evaluation of inorganic arsenic in food and considerations for dietary intake analyses

*Lynch HN, Greenberg GI, Pollock MC, Lewis AS  
Gradient*

**P.58** Assessing doses from external radiation using a personal dosimeter in areas affected by the Fukushima Dai-ichi nuclear plant accident

*Naito W  
National Institute of Advanced Industrial Science and Technology*

**P.59** Exposure factors interactive scenarios tool

*Overton AJ, Cawley M, Hartman P, Turley A, Phillips L, Moya J  
ICF International, US EPA*

**P.60** Pharmacokinetics and excretion balance of morpholine and its main metabolite, N-Nitroso (2-hydroxyethyl) glycine, in rats

*Piotrowski A, Ronga S, Aubert N, Boize M, Cabanes PA  
Electricity of France (EDF)*

**P.61** Health risk assessment of DDT and DDE applying Bayesian Statistics to multimedia CalTOX model in OpenBUGs

*Shi-Jung C, Pei-Ting C, Kuen-Yuh W  
National Taiwan University*

**P.62** Methodology for the quantification of dermal contact with water at recreational beaches using videography

*Stuchal LD, Roberts CB, Denslow ND, Roberts SM  
University of Florida*

**P.63** Health risk assessment of nickel via dietary exposure for general population in China

*Wang W, Zhang Z, Yang G, Wang Q  
Zhejiang Academy of Agricultural Sciences*

**P.64** Probabilistic assessment of saccharin exposures with bayesian statistics markov chain Monte Carlo simulation

*Yang YR, Wu KY  
National Taiwan University*

**P.65** Probabilistic aggregate assessment of health risk on nonylphenol for Taiwanese population with bayesian statistics Markov chain Monte Carlo simulation

*Yeh H, Wu KY  
National Taiwan University*

**P.66** PCB homolog in data comparison

*Julius C, Luke N  
CDM Smith*

**P.68** A quantitative assessment of risks of heavy metal residues in laundered shop towels

*Magee BH, Connor KH  
ARCADIS*

**P.69** Cancer mortality and quantitative oil production in the Amazon region of Ecuador, 1990-2010

*Moolgavkar SH, Chang ET, Watson HN, Lau EC  
Exponent, Inc.*

**P.70** Groundwater statistics for environmental project managers

*Ryti RT, Chang N, Templin H, Stubbs C, Simmons L, Wilson LH  
Interstate Technology and Regulatory Council GSMC Team*

**P.72** Overview of research on residential wood smoke-associated health effects in economically developed regions

*Kadlec MC  
Washington Department of Ecology*

**P.73** Air dispersion model for estimated emission rate from petroleum plant source by using Bayesian Statistics with Markov Chain Monte Carlo simulation

*Chuang YC, Wu KY  
National Taiwan University*

**Foundational Issues**

**P.75** On the spatio-temporal dimensions of socio-technical risk analysis

*Pence J, Mohaghegh Z  
University of Illinois Urbana-Champaign*

**P.76** Weight-of-evidence evaluation of short-term ozone exposure and cardiovascular biomarkers  
*Sax SN, Pizzurro DM, Zu K, Lynch HN, Prueitt RL, Goodman JE*  
*Gradient*

**Microbial Risk Analysis**

**P.77** Quantitative risk assessment for listeria monocytogenes in cantaloupe  
*Wang M, Lambertini E, Micallef SA, Pradhan AK*  
*University of Maryland, College Park, MD*

**P.78** Microbial risk assessment needs specific exposure factors  
*Peyronnet A, Wallet F, Charton-Bissetta J, Cabanes PA*  
*EDF*

**P.79** Quantitative microbial risk assessment model for antimicrobial resistant Salmonella spp. and Verocytotoxin-producing E. coli associated with consumption of raw milk  
*Cao H, Lambertini E, Mishra A, Pradhan AK*  
*University of Maryland*

**P.81** Evaluation of quantitative microbial risk assessments for salmonella and campylobacter in poultry meat  
*Pang H, Biswas D, Pradhan AK*  
*University of Maryland*

**Miscellaneous**

**P.83** Risk of synthetic biology and nanotechnology for environmental remediation: integrating data and judgment  
*Trump BT, Bates E, Grieger K, Plourde K, Keisler J, Linkov I*  
*University of Michigan, US Army Engineer Research and Development Center, RTI, University of Massachusetts*

**P.84** Characterizing ambient background nanoparticle distributions in workplaces  
*Germand JM, Ili F*  
*Penn State University*

**Occupational Health and Safety**

**P.85** Development and application of a framework for the selection of an appropriate occupational exposure limit  
*Deveau M, Krenski D, Maier A*  
*University of Ottawa, University of Cincinnati*

**P.86** Development of an “easy-to-conduct” risk assessment method for occupational accidents in small and medium-sized enterprises  
*Makino R, Matsukura K, Wada Y*  
*AIIST*

**P.87** Practices and enhancements of the Workplace Environmental Exposure Level (WEEL) development for chemicals: an initiative of the Occupational Alliance for Risk Science (OARS)  
*Parker AL, Nance PM, Maier A*  
*Toxicology Excellence for Risk Assessment (TERA), University of Cincinnati*

**P.88** Assessment of commercial fishing risk with respect to extratropical cyclones in Atlantic Canada  
*Rezaee S, Pelot R*  
*Dalhousie University*

**P.89** Human health risk assessment of organophosphorus pesticide Methidathion  
*Chiang SY, Wu KY*  
*China Medical University*

**P.90** Have gun - will travel. Lead contamination and health risk assessment in public buildings that previously housed indoor firing ranges  
*Wernke MJ, McGee RD, Frantz R, Wurzel K*  
*Phronesis Scientific Consulting, A.L.M. Consulting, Indoor/Outdoor Environmental, NewFields Companies*

**Risk Potpourri**

**P.91** The risk based sustainability project - the project based learning approach  
*Miller TA*  
*ZMassociates Environmental Corporation*

**P.93** Understanding the channels of contagion: a game between borrower and lender countries  
*Welburn J, Hausken K, Bier VM*  
*University of Wisconsin - Madison*

**P.94** Societal risk criteria and risk aversion  
*Abedinisobi F, Baecher GB*  
*University of Maryland*

**P.96** Experiencing flood evacuation and its impact on risk perception, stress, PTSD, and coping strategies  
*López-Vázquez E, Marrán ML, Dorantes G*  
*Morelos Universidad Autónoma del Estado*

**Risk Communication**

**P.97** Floods, communication, and climate change: examining social media posts about climate change during the 2013 Colorado floods  
*Anderson AA*  
*Colorado State University*

**P.98** Antecedents to electronic cigarette use  
*Trumbo CW, Kim S*  
*Colorado State University*

**P.99** Expectations of expert forecast uncertainty across domains  
*Dieckmann NE, Johnson B, Gregory R, Mayorga M, Han PKJ, Slovic P*  
*Oregon Health & Science University, Decision Research, University of Oregon, Maine Medical Center*

**P.100** Factors predicting surgeons’ preferred and actual roles in interactions with their patients  
*Garcia-Retamero R, Cokely ET, Wicki B, Hanson B*  
*University of Granada and Max Planck Institute*

**P.101** Americans’ stereotypes of societal institutions: an exploratory investigation  
*Johnson BB*  
*Decision Research*

**P.102** Religiosity and policy support to mitigate climate change  
*Kim HK, Ho S, Detenber BH*  
*Nanyang Technological University*

**P.103** Preliminary survey on public acceptance of hydrogen fueling station in Japan  
*Ono K, Tsunemi K*  
*National Institute of Advanced Industrial Science and Technology (AIST)*

**P.105** Shooting, fast and slow: how gun-crime duration affects support for gun policy reforms  
*Rob S, Schuldt JP*  
*Cornell University*

**P.106** Social media presence and reputational threat of companies involved in toxic spills  
*Swain KA*  
*University of Mississippi*

**P.107** Community engagement and risk perception in disaster preparedness in Canada: a systemic approach  
*Yong AG, Lemyre L, Pinsent C, Krenski D*  
*GAP-Santé, University of Ottawa*

**P.108** A method of comparing a public health risk between surveillance data and mass media report: using state-level fatal occupational injury as an example  
*Zhang H*  
*Colorado State University*

**P.110** Public participation: opportunities and limitations to manage emerging risks  
*Schroeter RS, Scheel OS*  
*University of Stuttgart*

**P.112** Utilizing need for affect and cognition: measuring environmental policy preference by experimental design studies  
*Kim S-J*  
*Colorado State University*

**P.113** Structural models of Japanese public perception regarding the risk of radioactive substances in food  
*Kito Y, Nijyama Y, Kudo H*  
*Kyoto University*

**P.114** Creating the right formula through weaving feeling with thinking: communicating the starfish wasting disease with emotional frames  
*Lu H*  
*Cornell University*

- P.115** Influence of community structure on environmental communication: a content analysis along the local newspapers of the Hudson River Valley  
*Tallapragada M, Eosco GM, Deline MB, Scherer CW*  
*Cornell University*
- P.117** Clean water, dirty water: examining water quality issues in farming trade magazines  
*Walkner TJ*  
*University of Iowa*
- P.118** Resilience vs. adaptation: framing and action  
*Wong-Parodi G, Fischhoff B, Strauss B*  
*Carnegie Mellon University and Climate Central*
- P.119** A perspective of international climate policies through the lens of mass media  
*Wu T, Xu JH*  
*Peking University*
- P.120** Evaluating the success of science festivals  
*Oshita T, Yuan S, Besley JC*  
*Michigan State University*
- P.121** Climate of doubt: media and elite framing in North Carolina's passage of House Bill 819  
*Koffman KA*  
*North Carolina State University*
- P.122** Understanding, communicating and mitigating risk through motivation  
*Snekkenes E*  
*Gjøvik University College*
- P.123** Review of tools used by National Regulatory Authorities and international chemicals management authorities to communicate chemical risk information to the general public  
*Nance P, Cockrell G*  
*Toxicology Excellence for Risk Assessment; Health Canada*
- P.124** Common language: an analysis of communicating children's health risks to the public  
*Nance P*  
*Toxicology Excellence for Risk Assessment*
- P.125** Understanding risks and context uncertainties: the CIB approach in energy systems analyses  
*Scheele R*  
*University of Stuttgart Germany*
- P.126** The influence of self-other relevancy on perception of proportions of different PM2.5 sources  
*Zhou Y, Broomell SB, Florig HK, Casman E, Xu J*  
*Peking University and Carnegie Mellon University*
- P.127** #Hurricane Sandy: an analysis of instagram photos using the CAUSE model to determine risk communication practices  
*Kowalek DK*  
*Howard University*
- P.128** Experimental risk communication regarding functional foods in Japan  
*Kudo H, Kito Y, Niyama Y*  
*Kyoto University*
- P.129** Wireless telecommunications facilities - risk assessment, perception, and communication  
*Musso MP*  
*HDR*
- Risk and Development**
- P.131** Can data science inform environmental justice and community risk screenings for type 2 diabetes?  
*Davis JA, Burgoon L*  
*National Center for Environmental Assessment, US Environmental Protection Agency*
- P.132** Natural hazards in Chile: assessing risk perception and social trust on governmental and non-governmental institutions  
*Bronfman NC, Cisternas PC, Jimenez RB, Lopez-Vazquez E, Cifuentes LA*  
*Universidad Andres Bello*
- P.133** Toxicology-based cancer causation analysis of CoCr-containing hip implants: a quantitative assessment of in vitro genotoxicity studies  
*Christian WV, Oliver LD, Kreider ML, Finley BL*  
*Cardno ChemRisk, LLC*
- P.134** Probabilistic risk assessment of 3-MCPD via Bayesian statistics  
MarKov Chain Monte Carlo simulation  
*Ming-Yen C, Kuen-Yuh W*  
*National Taiwan University, Taipei, Taiwan*
- P.136** A spatial risk assessment for dengue fever incidences by accounting for environmental and socioeconomic factors  
*Yu HL, Chiu CH*  
*National Taiwan University*
- Risk, Policy and Law**
- P.137** Risk assessments algorithms and the legitimacy of public policy  
*Losada Maestre R*  
*Carlos III of Madrid University (Spain)*
- P.138** Health risk perception of wind turbines and opposition in Ontario  
*Baxter J, Walker C*  
*Western University*
- P.139** Effect of probabilistic methods on human health ambient water quality criteria  
*Buonanduci MS, Anderson PD*  
*ARCADIS*
- P.141** Development of an updated societal-risk goal for nuclear power safety  
*Rob C, Bier V, Corradini M, Liu S*  
*University of Wisconsin-Madison*
- P.142** Analyzing risks of urban roaming dogs  
*Gore MG, Mauer B, Pizaro J, Reese L, Wilkins M*  
*Michigan State University*
- P.143** An empirical study of the toxic capsule crisis in China: risk perceptions and behavioral responses  
*Feng T, Keller LR, Wu P, Xu Y*  
*University of California, Irvine*
- P.144** A quantitative risk assessment of US cigarette products, 2012 and 2013  
*Marano KM, Morgan W, Ogden MW, Swanger JE*  
*RAI Services Company, R.J. Reynolds Tobacco Company*
- P.145** Quality of care. Is public information the solution?  
*Eisinger F*  
*INSERM and Paoli Calmettes Institute*
- P.146** Addressing potential risks of emerging technologies: a comparative study on responsible innovation  
*Kishimoto A*  
*The University of Tokyo*
- P.147** Systematic review meets risk assessment and DRAGON manages the data  
*Henning C, Overton R, Burch D, Ross P, Cleland J, Turley A*  
*ICF International*
- P.148** Taking a risk: using clustering to prioritize literature search results  
*Turley A, Blain R, Stevens C, Cawley M*  
*ICF International*
- Security & Defense**
- P.150** Phase I Impact Assessment Results for 2,4-Dinitroanisole (DNAN) and n-Nitrosodimethylamine (NDMA)  
*Rak A, Bass N, Vogel CM*  
*Noblis, US Army Public Health Command*
- P.151** Risk assessment of a chemical dispersed by an explosion  
*Mandel A, Stern E*  
*Tel Aviv University and Center for Risk Analysis, Israel*
- P.152** Perception and action in a conflict zone: a study of rural economy and rural life amidst Narcos in Eastern San Luis Potosi, Mexico  
*Verteramo Chiu LJ, Turvey CG*  
*Cornell University*
- P.153** Predicting likely deployment environments for mobile shelters: an input for total lifecycle cost analysis for military and disaster relief shelters  
*Murphy PM*  
*Notre Dame*
- P.154** Modelling terrorism risk exposure: the frequency conundrum  
*Johnson S, Holt C, McMinn C*  
*Cranfield University*
- P.155** Holistic cyber security risk assessment framework  
*Cains MG, Henshel DS, Camp JL, BERTenthal A, Alexeen TDK, Abbott JE*  
*Indiana University*
- P.156** Optimizing resource allocation in adversarial contexts: a nuclear security application  
*Ward RM, Schneider EA*  
*The University of Texas at Austin*

- P.157** Perceptions of Homeland Security risk: comparing responses of a nationally representative survey to a deliberative risk ranking  
*Lundberg RP, Willis HH*  
*Sam Houston State University and Rand Corporation*
- P.159** Inclusion of biological agent decay and microbial growth in the terrorism risk assessment food consequence model  
*Middleton JK, Richter BP*  
*Battelle Memorial Institute*
- P.160** Modeling of chlorine inactivation in municipal water contaminations  
*Richter BP, Middleton JK*  
*Battelle Memorial Institute*
- Late Breaking Posters**
- P.162** Geo-centric risk and decision analysis for emergency response and disaster management: from open data to open analysis  
*Hamilton MC, Bates ME, Nedzica JA, Fox-Lent C, Doody PC, Voyadgis DE, Brachman ML, Bauer NL*  
*US Army Engineer Research and Development Center*
- P.163** Risk-based groundwater and surface water investigation to evaluate potential environmental impact of coal ash management practices at coal-fired power plants  
*Bradley L J N, Haddock M, Cipriano R, Haley & Aldrich, Golder Associates, Schiff Hardin*
- P.164** Application of quantitative decision analytics in nanotechnology  
*Subramanian V, Semenzin E, Hristozov D\*, Linkov I, Marcomini A*  
*University Ca' Foscari Venice*
- P.165** Interactive effects of n-TiO<sub>2</sub> and Cd<sup>2+</sup> in marine invertebrates  
*Balbi T, Smerilli A, Fabbri C, Ciacci C, Grasselli E, Brunelli A, Hristozov D\*, Marcomini A, Gallo G, Canesi L*  
*University Ca' Foscari Venice*
- P.166** Predictive model of failure by punching of a slab-column  
*Kharabi F, Hafidi M, Lefkir A*  
*State University USTHB*
- P.167** Integrating strategic risk communication with risk assessment to achieve targeted risk management outcomes  
*Seena AS*  
*Norwegian Afghanistan Committee (NAC)*
- P.168** A tale of two storms: recalling the risk of “hurricane” versus “superstorm” Sandy  
*Schultz JP, Easo GM, Rickard LN, Daziano R, Scherer CW*  
*SUNY ESF, Cornell University*
- P.169** Assessment of the impact of the federal order in reducing the risk of exposure of live freshwater fish species in the United States to Viral Hemorrhagic Septicemia Virus (VHSV-IVb)  
*Mlakar J, Johnson R, Gustafson L, Thometz E, Losapio C*  
*USDA APHIS Veterinary Services*
- P.170** Proposed methods for assessing green space and neighborhood indicators as influential factors for childhood respiratory health in the CCAAP study  
*Gernes RA, Beresin GA, Wright JM, Rice GE, Ryan PH*  
*National Center for Environmental Assessment, Office of Research and Development, US Environmental Protection Agency, Cincinnati OH, Cincinnati Children's Hospital Medical Center*
- P.173** How dose response curves derived from clinical ozone exposures can inform public policy  
*Lange SS, Rhomberg L, Dourson M, Tao G, Goodman J, Honeycutt M*  
*Texas Commission on Environmental Quality, Gradient, TERA*
- P.174** Ongoing meta-analysis on the association between disinfection by-product exposure and small for gestational age births  
*Beresin GA, Summerhayes RJ, Rahman B, Morgan G, Wright JM*  
*Association of Schools and Programs of Public Health, Southern Cross University, Australia, University of Sydney School of Public Health, US Environmental Protection Agency*
- P.175** Data derived extrapolation factors: improving the quantitative basis for human health risk assessment  
*Lipscomb JC, Lovit AB, Kenyon E, Moser V, Foos B, Galizija A, Schoery R\*, Broder M*  
*US Environmental Protection Agency*
- P.176** Evaluation of study quality criteria frameworks  
*Goodman JE, Lynch HN, Prueitt RL, Beck NB, Tabony JA, Rhomberg LR*  
*Gradient*
- P.178** Modeling salmonella transfer during tomato slicing  
*Charles AL, Wang H, Ryser E, Schaffner DW*  
*Rutgers University, Michigan State University*
- P.179** Health impact assessment: an emerging trend for oil and gas projects in the US?  
*Souweine K, McDaniel M, Ollson C, McCallum L*  
*Intrinsic Environmental Sciences*
- P.180** Localized perception on wildfire risk  
*Chakreyyarat VS*  
*Utah State University*
- P.181** Overcoming the population crisis in Afghanistan: implementing effective and safe birth control methods in rural areas  
*Haidari I*  
*Afghan Intermediate Medical Institute*
- P.182** Water and sewer service disparities in North Carolina: public health risks  
*MacDonald Gibson J, Johnston J, DeFelice N*  
*University of North Carolina at Chapel Hill*
- P.183** Re-assessing the affect heuristic: trust and emotions as important ingredients to informed decision making about risks  
*Huijts NMA, Roesser S*  
*Delft University of Technology*
- P.184** Assessing influence on Twitter: reputation risk in networks  
*Sanger W, de Marcellis-Warin N\*, Warin T*  
*Polytechnique Montréal, HEC Montréal*
- P.185** NIOSH Center for Direct Reading and Sensor Technologies  
*DeBord DG, Hoover MD*  
*National Institute for Occupational Safety and Health*
- P.186** Regulatory ozone risk assessment sensitivity to improved exposure and response models – II  
*Ollison W, Johnson T, Capen J*  
*API*
- P.187** Risk assessment on norovirus in bivalve molluscan shellfish  
*Pouillot R, Smith M, Van Doren JM, Holtzman JH\*, Goblick G, Roberts C, Edwards R, Buenaventura E, Burkhardt W, Calci KR*  
*FDA, Health Canada, Canadian Food Inspection Agency, Environment Canada*
- P.188** Technique for the assessment of intervention options (TAIO)  
*Forsythe KW*  
*US Department of Agriculture, Animal and Plant Health Inspection Service*
- P.189** The (U.S.) National Library of Medicine's information resources for toxicology, exposure science, and risk assessment: recent enhancements and future plans  
*Hakkinen PJ, Chen L, Fonger GC, Jordan S, Publicker S*  
*National Library of Medicine, National Institutes of Health*
- P.190** Is anyone developing a vaccine for better Ebola risk communication?  
*McDaniel MF, Boomus C*  
*Intrinsic*



**P.191** Recent advances in chemical toxidromes: consistent lexicon and emergency response tools

*Hodgin CR, Hakkinen PJ, Siegel D, Kirk M, Koerner JE, Ignacio J, Pakiam J, Fonger GC, Chang HF, O'Brien MP*  
*AlphaTRAC, National Library of Medicine, National Institutes of Health, DHS, Office of Emergency Management*

**P.192** Veterinary response during disasters involving chemicals: applicability of lessons learned from recent disasters to chemical mass casualty events

*Hodgin HM, O'Brien MP, Hodgin CR, Hakkinen PJ*  
*AlphaTRAC, National Library of Medicine, National Institutes of Health*

**P.193** Perceived risk of extinction for species depends on assessment criterion applied

*Song H, Schuldt JP*  
*Cornell University*

**P.194** The weight of evidence for fetal growth restriction related to disinfection by-product exposures

*Wright JM*  
*US EPA*

**P.195** Incorporating Tox21/ToxCast endocrine-related data into greenscreen chemical hazard assessment

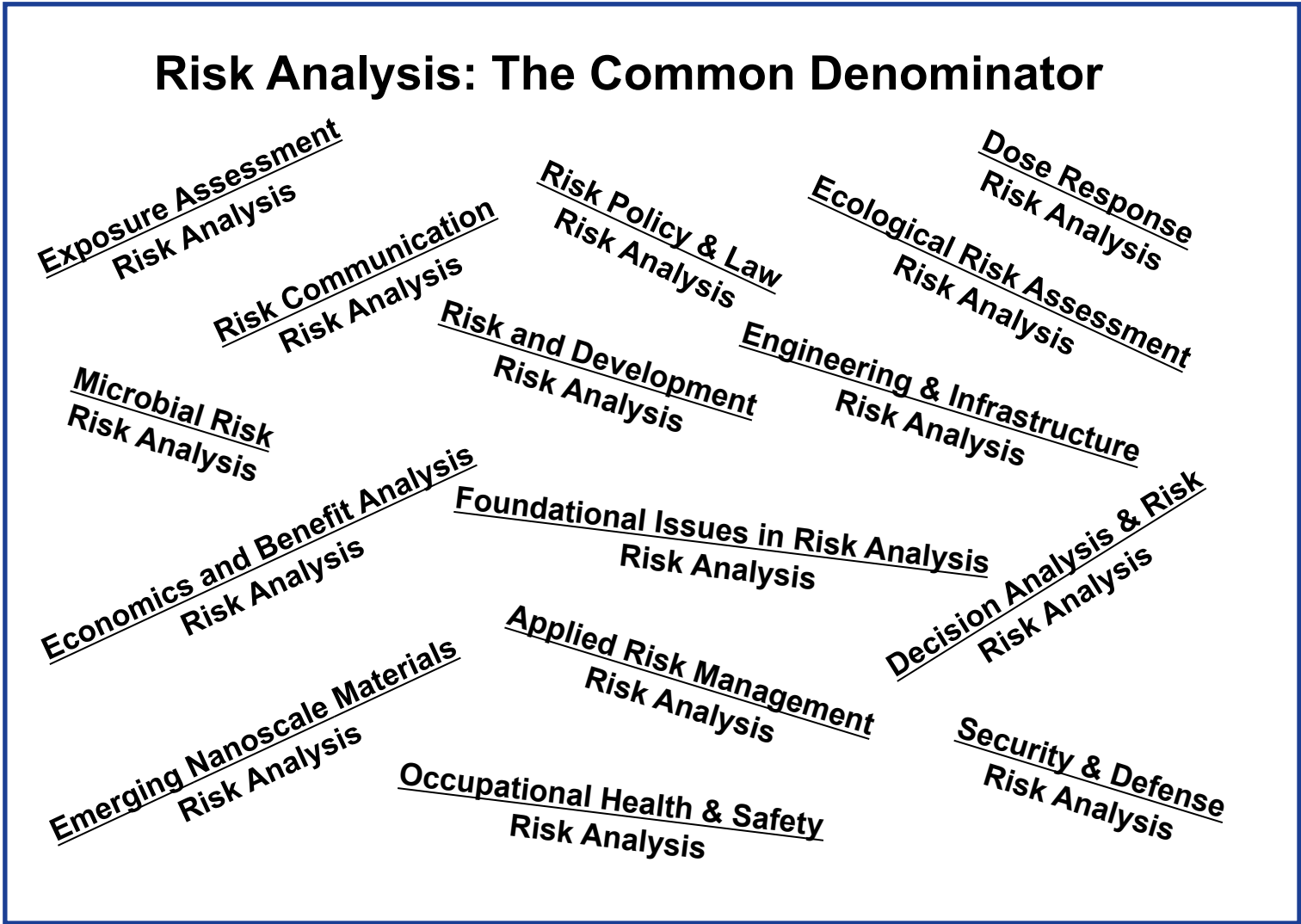
*Guerrette Z, Woods K, Whittaker M*  
*ToxServices, LLC*

**P.196** Design and decision – an analysis of the risk-benefit tradeoff introduced by the choice of graphite, graphene or molybdenum device layers in thin film solar photovoltaics

*Scott R, Cullen AC\**  
*Daniel J. Evans School of Public Affairs, University of Washington*

**P.197** Regulation vs. Risk of Agricultural Biotechnology in New Zealand

*Strabala TJ, Rowe AJ, Scott S, Corin S, Atapattu A*  
*Environmental Protection Authority*



<p><b>10:30 AM - Noon</b> <i>Plaza Court 1</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Court 6</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 10</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 11</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 12</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom D</i></p>
<p><b>T2-A Symposium: Global Catastrophic Risk</b> <i>Chair: Anthony Barrett</i></p>	<p><b>T2-B Benefit-Cost Analysis for Environmental Applications</b> <i>Chair: R. Jeffrey Lewis</i></p>	<p><b>T2-C Investing for Resilience in Complex Systems</b> <i>Chair: James Lambert</i></p>	<p><b>T2-D Symposium: Pushing Forward: Continued Identification, Assessment, and Management of the Risks Associated with Chemicals and Materials in the Department of Defense</b> <i>Chair: Andrew Rak</i></p>	<p><b>T2-E Symposium: Evolving Environment: Produce-Related Food Safety Risk Modeling</b> <i>Chair: Regis Pouillot</i></p>	<p><b>T2-F Symposium: Evaluating the Public Health Risks of Marijuana: Scientific Evidence and Data Needs</b> <i>Chair: Tim Byers</i></p>
<p><b>10:30 AM T2-A.1</b> Analyzing current and future catastrophic risks from emerging-threat technologies <i>Barrett AM</i> <i>Global Catastrophic Risk Institute, ABS Consulting</i></p>	<p><b>10:30 AM T2-B.1</b> Valuing the ozone-related health benefits of methane emission controls <i>Sarofim M, Waldhoff ST, Anenberg SC</i> <i>Pacific Northwest National Laboratory</i></p>	<p><b>10:30 AM T2-C.1</b> Assessing and improving resilience of infrastructures to both “worst case” and “most likely” events <i>Alderson DA, Carhyle WM, Ross JD</i> <i>Naval Postgraduate School</i></p>	<p><b>10:30 AM T2-D.1</b> How life cycle assessment can reduce risks. Really! <i>Yaroschak PJ, Rak A*</i> <i>Office of the Secretary of Defense</i></p>	<p><b>10:30 AM T2-E.1</b> Cracking the nut: salmonella tree nut risk assessment <i>Hoelzer K, Pouillot R</i> <i>Food and Drug Administration</i></p>	<p><b>10:30 AM T2-F.1</b> The effects of marijuana on the mental health of adolescents <i>Riggs P</i> <i>University of Colorado School of Medicine</i></p>
<p><b>10:50 AM T2-A.2</b> Placing global catastrophic risks in the framework of unintended consequences <i>Tonn B, Stiefel D</i> <i>University of Tennessee-Knoxville</i></p>	<p><b>10:50 AM T2-B.2</b> Air quality social costs: developing a better model <i>Heo J, Adams PJ</i> <i>Carnegie Mellon University</i></p>	<p><b>10:50 AM T2-C.2</b> Allocating resources to enhance resilience <i>MacKenzie CA, Zobel CW</i> <i>Naval Postgraduate School</i></p>	<p><b>10:50 AM T2-D.2</b> Product Materials Declaration for Military Hardware Products: Promoting Risk Management <i>Sheehan T</i> <i>Raytheon Company</i></p>	<p><b>10:50 AM T2-E.2</b> Risk assessment of radioactive cesium via consumption of leafy vegetables after an environmental contamination (e.g Fukushima) <i>Sy MM, Simon-Cornu M</i> <i>Aix Marseille University, French Institute of Radiation Protection and Nuclear Safety</i></p>	<p><b>10:45 AM T2-F.2</b> The role of marijuana in cancer development <i>Bowles D</i> <i>University of Colorado School of Medicine</i></p>
<p><b>11:10 AM T2-A.3</b> Feeding everyone: solving the food crisis in event of global catastrophes that kill crops or obscure the sun <i>Denkenberger DC, Pearce JM</i> <i>Global Catastrophic Risk Institute</i></p>	<p><b>11:10 AM T2-B.3</b> Benefit-cost analysis of California’s hexavalent chromium drinking water standard <i>Belzer R</i> <i>Good Intentions Paving Company</i></p>	<p><b>11:10 AM T2-C.3</b> Exploring the resilience of the US aviation sector via graph theoretic approaches <i>Tavakkoli S, Khanna V, Chopra S*</i> <i>University of Pittsburgh</i></p>	<p><b>11:10 AM T2-D.3</b> A user’s perspective on enhancements made to the IRIS process <i>Meyer A, Rak A*</i> <i>US Army Corps of Engineers</i></p>	<p><b>11:10 AM T2-E.3</b> The Farm Location and Animal Population Simulator (FLAPS): macrosystems approaches to modeling the role of livestock and wildlife in produce contamination <i>Burdett CL, Kraus B, Garza SJ, Bjork KE, Miller RS, Oryang D, Farnsworth ML, McClure M</i> <i>Colorado State University, USDA/APHIS/Center for Epidemiology and Animal Health, FDA/Center for Food Safety and Applied Nutrition, Conservation Science Partners</i></p>	<p><b>11:00 AM T2-F.3</b> Marijuana use and traffic safety <i>Brooks-Russell A</i> <i>University of Colorado Denver</i></p>
<p><b>11:30 AM T2-A.4</b> A novel risk-based approach to inform food safety decisions <i>Mokhtari A, Beaulieu S, Little K, Oryang D</i> <i>RTI International</i></p>			<p><b>11:30 AM T2-D.4</b> Using expert elicitation and group decisions: lessons and methods from DoD’s impact assessment process <i>Rak A, Bass N*</i> <i>Noblis; US Army Public Health Command</i></p>	<p><b>11:30 AM T2-E.4</b> Quantitative Produce Risk Assessment Model (QPRAM): modeling enteric pathogen exchange between the environment and the fresh produce we eat <i>Oryang D, Dennis S, Mokhtari A, Beaulieu S</i> <i>US Food and Drug Administration, and RTI International</i></p>	<p><b>11:15 AM T2-F.4</b> Decriminalization of marijuana and impact on unintentional pediatric exposures <i>Wang GS</i> <i>University of Colorado Anschutz Medical Campus, Children’s Hospital Colorado</i></p>
<p><b>11:30 AM T2-E.5</b> Latent health effects of marijuana from exposure during pregnancy &amp; breast feeding <i>Borgelt L</i> <i>University of Colorado Anschutz Medical Campus</i></p>					<p><b>11:45 AM Discussion</b></p>

**Join us at the**  
**SRA Awards Luncheon and Business Meeting**  
*Noon - 1:30 pm, Plaza Ballroom ABC*  
 Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday’s Poster Reception.  
 (Luncheon is included in Registration Fee)

<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom E</i> <b>T2-G Symposium:</b> <b>Foundational Issues II: Confronting the Unforeseen and Black Swans</b> <i>Chair: Seth Guikema</i></p> <p><b>10:30 AM</b> <b>T2-G.1</b> Unknown (Un)Knowns: a problem formulation and approaches for risk-informed decision-making <i>Damjanovic I</i> <i>Texas A&amp;M University</i></p> <p><b>10:50 AM</b> <b>T2-G.2</b> Are adaptive strategies feasible and useful in confronting extreme risks? <i>Goble R</i> <i>Clark University</i></p> <p><b>11:10 AM</b> <b>T2-G.3</b> Reflections on black swans and emerging risks <i>Renn O</i> <i>University of Stuttgart</i></p> <p><b>11:30 AM</b> <b>T2-G.4</b> The complexity of critical infrastructures and the risk of black swans: some foundational reflections <i>Bjerga T, Zio E, Aven T</i> <i>University of Stavanger, Ecole Central Paris-Supelec and Politecnico di Milano</i></p> <p><b>11:50 AM</b> <b>T2-G.5</b> Can model simulations be used to reduce the domain of black swans? <i>Berner CL, Flage R, Guikema S</i> <i>University of Stavanger and Johns Hopkins University</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom F</i> <b>T2-H Symposium: Regulatory Risk Analysis Part I</b> <i>Chair: Jannavi Srinivasan</i></p> <p><b>10:30 AM</b> <b>T2-H.1</b> Regulatory approaches to synthesis of scientific evidence in decision-making <i>Nachman K</i> <i>Johns Hopkins University Center for a Livable Future</i></p> <p><b>10:50 AM</b> <b>T2-H.2</b> International exposure assessment based on national survey: good practices and limits <i>Arvella D</i> <i>European Food Safety Authority</i></p> <p><b>11:10 AM</b> <b>T2-H.3</b> Lifestyle physiologically-based pharmacokinetic models <i>Fisher J, Doerge D</i> <i>US Food and Drug Administration National Center for Toxicological Research</i></p> <p><b>11:30 AM</b> <b>T2-H.4</b> Exposure modeling: interpreting results for regulatory risk assessments <i>DiNovi MJ</i> <i>US FDA</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 14</i> <b>T2-I Symposium:</b> <b>Communication Challenges in the Occupational Setting</b> <i>Chair: Paul Esposito</i></p> <p><b>10:30 AM</b> <b>T2-I.1</b> Risk assessment communication challenges at the organizational level <i>Esposito PA</i> <i>American Society of Safety Engineers</i></p> <p><b>10:50 AM</b> <b>T2-I.2</b> Risk assessment communication challenges for the occupational risk manager <i>Doe JB, Newberry JL</i> <i>American Society of Safety Engineers, Risk Assessment Institute</i></p> <p><b>11:10 AM</b> <b>T2-I.3</b> Risk communication challenges at the worker level - making it personal <i>Doe JB, Daigle KJ</i> <i>American Society of Safety Engineers, Risk Assessment Institute</i></p> <p><b>11:30 AM</b> <b>T2-I.4</b> Risk communication challenges at the executive level-effective use of data <i>Esposito PA, Newberry J, Daigle KJ, Woodhull D</i> <i>American Society of Safety Engineers, Risk Assessment Institute</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 15</i> <b>T2-J Multimedia Session: Risk Communications for Design Analysis, Framing and Language Issues</b> <i>Chair: Anne-Marie Nicol</i></p> <p><b>T2-J.3</b> Examining the formation and public response to ephemeral organizations during a public health crisis <i>Wickline MC, Sellnow TL, Sutton JN</i> <i>University of Kentucky, University of Colorado: Colorado Springs</i></p> <p><b>T2-J.4</b> How can Europe achieve the California standard of vehicle emissions? <i>McLoughlin M</i> <i>King's College London</i></p> <p><b>T2-J.6</b> Framing, priming and recency effects in risk communication: exploring opinion formation of "post-normal" science <i>Cacciatore MA, Yeo SK, Scheufele DA, Corley EA, Brossard D, Xenos MA</i> <i>University of Georgia, University of Wisconsin-Madison, Arizona State University</i></p> <p><b>T2-J.7</b> The priming effects of Fukushima Nuclear Disaster and Tokyo 2020 Olympic Games on the country image of Japan <i>Yuan S, Besley JC</i> <i>Michigan State University</i></p> <p><b>T2-J.8</b> Reporting radon risks: a historical analysis of the media coverage of radioactive gas in Canada <i>Nicol AM, Ryan A, Tunbridge S, Okocha B</i> <i>Simon Fraser University</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 16</i> <b>T2-K Risk Communication and Health Issues</b> <i>Chair: Michelle Driedger</i></p> <p><b>10:30 AM</b> <b>T2-K.1</b> Understanding protective behaviour and information seeking regarding the risks of Lyme disease to one's child <i>Kuttschreuter M</i> <i>University of Twente, Netherlands</i></p> <p><b>10:50 AM</b> <b>T2-K.2</b> Perception of risk factors for cancer. A clear lesson from the Edifice Melanoma survey: bad is bad <i>Eisinger F, Morere JF, Pivot X, Grange F, Lebbe C, Mortier L, Robert C, Saïag P, Sasselas B, Viguier J</i> <i>INSERM UMR912/Paoli-Calmettes Institute Marseille, France</i></p> <p><b>11:10 AM</b> <b>T2-K.3</b> Nuancing an effective message: what happens when the evidence changes? <i>Driedger SM, Brouwers MC, Annable G</i> <i>University of Manitoba, McMaster University</i></p> <p><b>11:30 AM</b> <b>T2-K.4</b> Addressing the challenges of risk communication - The CTRA Medical Mitigation Model <i>Winkel DJ, Hawkins BE, Gooding RE, Cox JA</i> <i>Battelle Memorial Institute and Department of Homeland Security Chemical Security Analysis Center</i></p>
--	--	---	--	--

<p><b>1:30 - 3:00 PM</b> <i>Plaza Court 1</i> <b>T3-A Symposium: Adaptive Risk Governance: Integrative Facts and Values in Decision Making</b> <i>Chair: Pia Jobanna Schweizer</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Plaza Court 6</i> <b>T3-B Roundtable: Challenges &amp; Opportunities for Economic Analysis of Risk Policy</b> <i>Chair: Lisa Robinson</i></p>	<p><b>1:30 - 3:10 PM</b> <i>Governors Square 10</i> <b>T3-C Symposium: Risk Hazard and the Business Value Chain from Manufacturers to Retailers</b> <i>Chair: Anne LeHuray</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Governors Square 11</i> <b>T3-D Symposium: Perspectives on Risk Management in National Security</b> <i>Chair: Katherine Guzman</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Governors Square 12</i> <b>T3-E Quantitative Methods in Microbial Risk Analysis</b> <i>Chair: Martijn Bouwknegt</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Plaza Ballroom D</i> <b>T3-F Roundtable: Meet the Editors (Part 1): Where Can I Publish My Risk Related Research?</b> <i>Chair: Tony Cox</i></p>
<p><b>1:30 PM T3-A.1</b> Challenges to adaptive risk governance <i>Dietz T, Henry AD, Schweizer PJ*, Schweizer P</i> <i>University of Stuttgart</i></p>	<p><i>Panelists:</i> <i>Amber Jessup, US Department of Health and Human Services</i> <i>Clark Nardinelli, US Food and Drug Administration</i> <i>Elizabeth Ashley, US Office of Management and Budget</i></p>	<p><b>1:30 PM T3-C.1</b> Understanding and interacting with the value chain <i>Schmidt K</i> <i>American Chemistry Council</i></p>	<p><b>1:30 PM T3-D.1</b> Challenges of risk management in national security <i>Guzman K, Wjuss G</i> <i>Sandia National Laboratories</i></p>	<p><b>1:30 PM T3-E.1</b> Comparing and integrating quantitative microbial risk assessment and epidemiology <i>Bouwknegt M, Knol AB, Tennis PFM, Van der Sluijs JP, Evers E</i> <i>National Institute for Public Health and the Environment</i></p>	<p><i>Panelists:</i> <b>Vision and Scope for Risk Analysis: An International Journal:</b> <i>Tony Cox</i> <b>Vision and Scope for Critical Reviews in Toxicology:</b> <i>Roger McClellan</i></p>
<p><b>1:50 PM T3-A.2</b> Uncertain and changing science, uncertain and changing values: how can assessments be made more useful for adaptive risk governance? <i>Goble RL</i> <i>Clark University</i></p>	<p><i>Tony Cheesebrough, US Department of Homeland Security, National Protection and Programs Directorate</i> <i>Aaron Szabo, Nuclear Regulatory Commission</i> <i>Sandy Hoffman, USDA</i></p>	<p><b>1:50 PM T3-C.2</b> A consumer's guide to chemical risk <i>Logomasini AM</i> <i>Public Policy Group</i></p>	<p><b>1:50 PM T3-D.2</b> Risk metrics for chemical facility security <i>Miller TH, Paap SM*, Wjuss GD, Guzman KD</i> <i>Sandia National Laboratories</i></p>	<p><b>1:50 PM T3-E.2</b> Cost, quality and safety: a non-linear programming approach to optimize the temperature for the supply chain of leafy greens <i>Mishra A, Lambertini E, Pradhan AK</i> <i>University of Maryland</i></p>	<p><b>Vision and Scope for Journal of Toxicology &amp; Environmental Health:</b> <i>Sam Kacem</i> <b>Vision and Scope for Journal of Risk Research:</b> <i>Jamie Wardman</i></p>
<p><b>2:10 PM T3-A.4</b> Multi-criteria decision analysis: a tool for stakeholder engagement <i>Wood MD, Collier ZA, Bates ME, Linkov I</i> <i>US Army Engineer Research &amp; Development Center</i></p>		<p><b>2:10 PM T3-C.3</b> Substitution of chemicals in the European union based on assessment of hazard, risk and impact <i>Öberg T</i> <i>European Chemicals Agency</i></p>	<p><b>2:10 PM T3-D.3</b> Useful approaches to evaluating adversary behavior in national security risk assessment <i>Streetman SS</i> <i>Data Architecture Solutions, Inc.</i></p>	<p><b>2:10 PM T3-E.3</b> Considering the design of three-class sampling plans for process control <i>Powell M, LaBudde R</i> <i>US Department of Agriculture and Least Cost Formulations, Ltd.</i></p>	<p><b>Vision and Scope for Human and Ecological Risk Assessment:</b> <i>Katherine von Stackelberg</i> <b>Vision and Scope for Human for Environmental Toxicology and Chemistry:</b> <i>Charles Menzje</i></p>
		<p><b>2:30 PM T3-C.4</b> Hazard v. risk, product deselection and relevant law <i>Kurfurst LS, Kanter D*</i> <i>Surdyk &amp; Baker, Swanson, Martin &amp; Bell</i></p>	<p><b>2:30 PM T3-D.4</b> Increasing the use of risk-relevant information for security at the Nuclear Regulatory Commission <i>Rivers JD, Siu NO, Nakoski JA, Lee PS, Cervera MS, Gordon D</i> <i>US Nuclear Regulatory Commission</i></p>		
		<p><b>2:50 PM T3-C.5</b> Improving risk assessment and management in Nigeria's oil and gas industry: a psychometric approach <i>Idehen EC</i> <i>Coventry University West Midlands United Kingdom</i></p>		<p><b>2:30 PM T3-E.4</b> Transfer of zoonotic pathogens in the household environment by direct surface contact <i>Lambertini E, Buchanan RL, Narrod C, Pradhan AK</i> <i>University of Maryland, College Park</i></p>	

1:30 - 3:10 PM

Plaza Ballroom E

**T3-G Cancer Dose Response**

Chair: Richard Belzer

1:30 PM

**T3-G.1** Application of cancer dose-response assessment in EPA's Integrated Risk Information System (IRIS) Program: considerations for conducting low-dose extrapolation

Flowers L, Birchfield NB, Chiu W-A, Jinot J, Scott CS, Hogan KA, Cogliano VJ  
National Center for Environmental Assessment, US EPA

1:50 PM

**T3-G.2** Bayesian probabilistic dose-response analysis using epidemiological data

Shao K, Allen BC, Farrar D, Chiu W, Conden J, Gift JS  
Indiana University Bloomington, Independent Consultant, US EPA

2:10 PM

**T3-G.3** The case against LNT

Broughel J, Calabrese E, Shamoun D, Williams R  
Mercatus Center at George Mason University

2:30 PM

**T3-G.4** A real-world refutation of a precautionary cancer risk assessment

Belzer RB  
Good Intentions Paving Company

2:50 PM

**T3-G.5** Unification of cancer and non-cancer human health risk estimation: a case study of di-n-butyl phthalate and male reproductive development

Wells EM, Woodruff TJ, Axelrad DA, Lam J  
Purdue University, University of California at San Francisco, US Environmental Protection Agency, Johns Hopkins University

1:30 - 3:00 PM

Plaza Ballroom F

**T3-H Symposium: Regulatory Risk Analysis Part II**

Chair: Jannavi Srinivasan

1:30 PM

**T3-H.1** Infant toxicology: state of the science and considerations in evaluation of safety

Neal-Kluever AP, Aungst J, Gu Y, Hatwell K, Muldoon-Jacobs K, Lzem A, Ogunghesan A, Shackelford M  
US Food and Drug Administration

1:50 PM

**T3-H.2** The GRAS process: an industry consultant's perspective

Tran N, Barraj L  
Industry

2:10 PM

**T3-H.3** Climate change impacts on food and water safety: a quantitative microbial risk assessment framework

Smith BA, Ruthman T, Sparling E, Auld H, Comer N, Young I, Lammerding AM, Fazil AM  
Public Health Agency of Canada; Risk Sciences International

2:30 PM

**T3-H.4** Panel discussion

Nachman K, DiNovi M, Fisher J, Srinivasan J, Arcella D, Barraj L, Neal-Kluever A  
US Food and Drug Administration

1:30 - 3:00 PM

Governors Square 14

**T3-I Symposium: Foundational Issues III: Uncertainties in Risk Analysis**

Chair: Roger Flage

1:30 PM

**T3-I.1** Some reflections on uncertainty treatment in risk analysis

Aven T  
University of Stavanger, Norway

1:50 PM

**T3-I.2** Risk analysis under deep uncertainty: a methodological comparison

Shorridge JE, Aven T, Guikema SD  
Johns Hopkins University

2:10 PM

**T3-I.3** Model uncertainty in risk analysis

Droguett EL  
Federal University of Pernambuco

2:30 PM

**T3-I.4** Risky accounts: uncertainty as a resource for safety

Haavik TK  
NTNU Social Research

1:30 - 3:00 PM

Governors Square 15

**T3-J Multimedia Session: Risk Communication Potpourri**

Chair: Audrey Turley

**T3-J.1** Risk information seeking behavior and patient-provider interaction

Evans C  
Colorado State University

**T3-J.2** The unification and identification of Bosnian expatriates during the flood disaster in the Balkans

Herovic E, Sellnow TL\*  
University of Kentucky

**T3-J.3** Talking about lone-offender extremist events: the challenges and benefits of communicating about low probability high impact risks

Pearce JM, Rogers MB  
King's College London

**T3-J.4** On social value of risk information in risk communication

Wang Y, Cha EJ  
Georgia Institute of Technology, University of Illinois at Urbana-Champaign

**T3-J.5** Determinants of food purchasing behavior and risk perception

Aoyagi M (Presented by Brooks)  
National Institute for Environmental Studies

**T3-J.8** Need for affect and cognition as antecedents to risk perception, information processing, and behavioral intent

Kim S-J, Trumbo CW  
Colorado State University

**T3-J.9** A new risk attribute in risk perception of air pollution: examination of self-other relevancy factor

Zhou Y, Broomell SB, Florig HK, Casman E, Xu J  
Peking University and Carnegie Mellon University

**T3-J.10** Chemical contamination at school and at play - challenges for assessing and communicating risks

Musso MP  
HDR

**T3-J.11** Social capital and disaster preparing behaviors and perception in the US

Tsuchida S, Shiotani T, Tsujikawa N, Nakagawa Y  
Kansai University, Kyoto Sangyo University, and Kobe Shima Women's University

1:30 - 3:00 PM

Governors Square 16

**T3-K Risk Communication and Food Issues**

Chair: Margot Kuttischreuter

1:30 PM

**T3-K.1** Communicating about contaminants in country foods: challenges and lessons learned from work in three Arctic communities

Boyd AD, Furgal C  
Washington State University, Trent University

1:50 PM

**T3-K.2** Online purveyors of raw meat, poultry, and seafood products: delivery policies and available consumer food safety information

Hallman WK, Senger-Mersich A, Godwin S, Berman H  
Rutgers University

2:10 PM

**T3-K.3** Do people want to understand about food safety risk? Three years after Fukushima incident

Hosono H, Kumagai Y, Inabuchi M, Sekizaki T  
The University of Tokyo

2:30 PM

**T3-K.4** Application of food defense software tools for the purposes of informing intervention strategies

Kubatko AL, Hawkins BE, Gooding RE, Brevett C, Cox JA  
Battelle Memorial Institute, Leidos, and the Department of Homeland Security Chemical Security Analysis Center

<p><b>3:30 - 5:00 PM</b> <i>Plaza Court 1</i> <b>T4-A Environmental Risks and Decisions: Airborne Chemicals, Radiation, and Big Data</b> <i>Chair: Myriam Merad</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Plaza Court 6</i> <b>T4-B Symposium: Innovations in Benefit Cost Analysis</b> <i>Chair: Daniel Herrera</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Governors Square 10</i> <b>T4-C Symposium: Infrastructure Management and Investment</b> <i>Chair: Shital Thekdi</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Governors Square 11</i> <b>T4-D Symposium: Dermal Exposure Assessment</b> <i>Chair: Jennifer Sabmel</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Governors Square 12</i> <b>T4-E Bayesian Networks and Other Probabilistic Methods Applied to Ecological Risk</b> <i>Chair: Wayne Landis</i></p>	<p><b>3:30 - 5:00 PM</b> <i>Plaza Ballroom D</i> <b>T4-F Roundtable: Meet the Editors (Part 2): What are the Current Issues Facing Scientific Publishing?</b> <i>Chair: Roger McClellan</i></p>
<p><b>3:30 PM T4-A.1</b> A methodological and practical contribution to air quality policy analytics - two practical examples in France <i>Myriam M, Laurence R INERIS</i></p>	<p><b>3:30 PM T4-B.1</b> The value of risk reduction: new tools for an old problem <i>Cruinich D, Eeckhoudt LR, Hammitt JK Harvard University</i></p>	<p><b>3:30 PM T4-C.1</b> Framework for a comprehensive assessment of a city's natural disaster risk with a case study for earthquake risk in Padang, Indonesia <i>Brink S, Davidson RA University of Delaware</i></p>	<p><b>3:30 PM T4-D.1</b> Dermal risk assessment for phalates and dermal absorption potential <i>Capshaw Z, Ferracini T Cardio ChemRisk</i></p>	<p><b>3:30 PM T4-E.1</b> The role of risk analysis in species conservation <i>Ayre KK, Stinson JS, Landis WG Western Washington University</i></p>	<p><b>Editor's Perspective from Critical Reviews in Toxicology: Roger McClellan</b></p>
<p><b>3:50 PM T4-A.2</b> Generic model for socio-economic evaluation of atmospheric decontamination plans <i>Cifuentes L, Cabrera C, Borchers N, Dittborn R Pontificia Universidad Católica de Chile and Ministry of Environment of Chile</i></p>	<p><b>3:50 PM T4-B.2</b> Development of a benefit transfer function to value reductions in morbidity risk for health and safety regulations <i>Hammitt JK, Haninger K, Robinson LA US Department of Health and Human Services</i></p>	<p><b>3:50 PM T4-C.2</b> How risk analysis should influence priorities in infrastructure management and investment <i>Lambert JH University of Virginia</i></p>	<p><b>3:50 PM T4-D.2</b> Dermal absorption of benzo[a]pyrene: assessment of flux from weathered soil, and application to risk assessment of contaminated sites <i>Bunge AL, Peckham TK, Kissel JC, Shirai JH, Lowney YW, Ruby MV Colorado School of Mines, University of Washington, Exponent Inc., and Integral Consulting Inc.</i></p>	<p><b>3:50 PM T4-E.3</b> Evaluating non-indigenous species eradication options in a Bayesian network derived adaptive management framework <i>Herring CE, Stinson J, Landis WG Western Washington University</i></p>	<p><b>Editor's Perspective from Journal of Toxicology &amp; Environmental Health: Sam Kacem</b></p>
<p><b>4:10 PM T4-A.3</b> Environmental monitoring and risk assessment <i>Zemba SG, Palma-Oliveira JM CDM Smith, University of Lisbon</i></p>	<p><b>4:10 PM T4-B.3</b> Using Kaldor-Hicks tableaux for distributional accounting in regulatory impact assessment <i>Krutilla KM, Piña G, Zhang Y Indiana University</i></p>	<p><b>4:10 PM T4-C.3</b> Analysis of drought risk management strategies using dynamic inoperability input-output modeling and event tree analysis <i>Santos JR, Pagsyoyin SAT, Herrera LC, Tan RR, Yu KDS George Washington University</i></p>	<p><b>4:10 PM T4-D.3</b> Dermal risk assessment and hand to mouth transfer efficiencies <i>Hsu E Cardio ChemRisk</i></p>	<p><b>4:10 PM T4-E.4</b> Determining the performance of instream eDNA sampling for monitoring the presence of invasive Asian carp <i>Song JS, Small MJ Carnegie Mellon University</i></p>	<p><b>Editor's Perspective from Journal of Risk Research: Jamie Wardman</b></p>
<p><b>4:30 PM T4-A.4</b> Quantifying uncertainty in radiation dose conversion factors for probabilistic performance assessments <i>Perona R, Lee R, Tauxe J, Black P Neptune and Company</i></p>	<p><b>4:30 PM T4-B.4</b> Understanding the distribution of regulatory costs and benefits: methods and case studies <i>Robinson LA, Hammitt JK Harvard University</i></p>	<p><b>4:30 PM T4-C.4</b> Risk analysis methods as roadmap for engineering innovations <i>Connelly EB, Lambert JH, Clarens AE, Colosi LM University of Virginia</i></p>	<p><b>4:30 PM T4-D.4</b> Investigation of the efficacy of skin decontamination by washing <i>Kissel JC, Bills EK, Shirai JH University of Washington</i></p>	<p><b>4:30 PM T4-E.5</b> Challenges in deriving causal relationships from field observational data: a case study in West Virginia headwaters <i>Menzie CA, Kashuba RO, Cerreto KM, Palmquist KR, Kessel CM Exponent</i></p>	<p><b>Editor's Perspective from Human and Ecological Risk Assessment: Elizabeth Anderson</b></p>
	<p><b>4:50 PM T4-B.5</b> Measuring the impact of regulations on the survival of small business: a probabilistic approach <i>Sertkaya A, Nardinelli C, Kirby L, Franz C, Forsell T Eastern Research Group, Inc., Food and Drug Administration (FDA)</i></p>	<p><b>4:50 PM T4-C.5</b> Weather risk management and decision analysis for technological facilities protection: a new approach <i>Caruzzo A, Belderrain MCN, Fisch G, Young GS, Hanlon CJ, Verlinde J Instituto Tecnológico de Aeronautica, Instituto de Aeronautica e Espaço, Pennsylvania State University</i></p>	<p><b>4:50 PM T4-D.5</b> Dermal risk decision making for dermal exposure scenarios <i>Sabmel J Cardio ChemRisk</i></p>		<p><b>Editor's Perspective from Environmental Toxicology and Chemistry: Charles Menzie</b></p>

## Tuesday

<p><b>3:30 - 5:10 PM</b> <i>Plaza Ballroom E</i> <b>T4-G Symposium:</b> <b>Nanoinformatics: Enabling and Applying the Linkage of Nanomaterials Datasets to Inform Decisions Related to Nano Risks</b> <i>Co-Chairs: Christine Ogilvie Hendren, Stacey Harper</i></p> <p><b>3:30 PM</b> <b>T4-G.1</b> Data exchange standards and predictive modelling platforms to inform nanotechnology risk decisions <i>Harper SL</i> <i>Oregon State University</i></p> <p><b>3:50 PM</b> <b>T4-G.2</b> Emerging methods in nanoinformatics: the nanomaterial registry's approach to a sustainable resource <i>Mills K</i> <i>RTI International</i></p> <p><b>4:10 PM</b> <b>T4-G.3</b> Nanotechnology: risk communication and stakeholder involvement in Germany <i>Renn O</i> <i>University of Stuttgart</i></p> <p><b>4:30 PM</b> <b>T4-G.4</b> The goodnanoguide promotes science-based good practices for nanomaterial safety in laboratories and in the workplace <i>Hoover M</i> <i>National Institute for Occupational Safety and Health</i></p> <p><b>4:50 PM</b> <b>T4-G.5</b> Decision analysis for nanotechnology risk assessment: moving theory into practice <i>Bates ME, Plourde KJ, Collier ZA, Thomas T, Linkov I</i> <i>US Army Corps of Engineers, Engineer Research and Development Center</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Plaza Ballroom F</i> <b>T4-H Symposium:</b> <b>Implementing NRC Recommendations: IRIS</b> <i>Chair: Julie Goodman</i></p> <p><b>3:30 PM</b> <b>T4-H.1</b> Understanding the elements of systematic review and evidence integration <i>Beck NB</i> <i>American Chemistry Council</i></p> <p><b>3:50 PM</b> <b>T4-H.2</b> New approaches for human health risk assessment: inorganic arsenic as a case study <i>Cowden J, Rooney A, Lee J, Jones R, Sams R</i> <i>US Environmental Protection Agency, National Institute for Environmental Health Sciences</i></p> <p><b>4:10 PM</b> <b>T4-H.3</b> Defining the range of the reference dose: imprecision versus uncertainty <i>Dourson ML, Gadagbui B, Pfau E, Thompson R, Lowe J</i> <i>Toxicology Excellence for Risk Assessment</i></p> <p><b>4:30 PM</b> <b>T4-H.4</b> A case study of the application of systematic review to toxicology: the zebrafish embryo test as a predictor of mammalian pre-natal developmental toxicity <i>Stephens ML</i> <i>Johns Hopkins University</i></p> <p><b>4:50 PM</b> <b>T4-H.5</b> Risk-of-bias analysis: case study of pleural plaques and lung function <i>Goodman JE, Kerper LE, Zu K, Lynch HN</i> <i>Gradient</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Governors Square 14</i> <b>T4-I Symposium: Advancing Cumulative Risk Assessment: Addressing the Challenges</b> <i>Chair: Scott Dotson</i></p> <p><b>3:30 PM</b> <b>T4-I.1</b> Cumulative risk assessment: bridging the gap between well-being and occupational safety and health <i>Dotson GS, Niemeier RT</i> <i>CDC/National Institute for Occupational Safety and Health/Education and Information Division</i></p> <p><b>3:50 PM</b> <b>T4-I.2</b> Considerations for aggregate exposure assessment and cumulative risk in setting workplace exposure limits <i>Lentz TJ</i> <i>CDC/National Institute for Occupational Safety and Health/Education and Information Division</i></p> <p><b>4:10 PM</b> <b>T4-I.3</b> Considering environmental and occupational stressors in cumulative risk assessments <i>Rice G, Teuschler LK</i> <i>US Environmental Protection Agency/National Center for Environmental Assessment</i></p> <p><b>4:30 PM</b> <b>T4-I.4</b> Paving the way: research to practice in cumulative risk analysis for occupational health professionals <i>Maier A</i> <i>University of Cincinnati/Department of Environmental Health</i></p> <p><b>4:50 PM</b> <b>T4-I.5</b> Assessing nonchemical factors in Cumulative Risk Assessment (CRA): a case study of the association between lower heart rate variability and particulate matter <i>Evans AM, Rice GE, Wright JM</i> <i>Oak Ridge Institute of Science and Education, US Environmental Protection Agency</i></p>	<p><b>3:30 - 5:00 PM</b> <i>Governors Square 15</i> <b>T4-J Microbial Risk Assessment</b> <i>Chair: Emma Hartnett</i></p> <p><b>3:30 PM</b> <b>T4-J.1</b> <i>Listeria monocytogenes</i> dose-response revisited - incorporating adjustments for variability in strain virulence and host susceptibility <i>Pouillot R, Hoelzler K, Chen Y, Dennis SB</i> <i>Food and Drug Administration</i></p> <p><b>3:50 PM</b> <b>T4-J.3</b> Quantifying the relationship between hemagglutination inhibition (HI) titer and protection against influenza <i>Huang Y, Anderson SA, Yang H</i> <i>FDA</i></p> <p><b>4:10 PM</b> <b>T4-J.5</b> Development of a quantitative food supply vulnerability tool exploring public health risks <i>Hartnett E, Paoli G, Schaffer D, Haas C</i> <i>Risk Sciences International, Rutgers University, Drexel University</i></p>	<p><b>3:30 - 5:00 PM</b> <i>Governors Square 16</i> <b>T4-K Risk Communication and Genetically Modified Food and Organisms</b> <i>Chair: Cindy Jardine</i></p> <p><b>3:30 PM</b> <b>T4-K.1</b> Support for labelling of genetically modified foods: how you ask matters <i>Cuite CL, Hallman WK, Morin X</i> <i>Rutgers, The State University of New Jersey</i></p> <p><b>3:50 PM</b> <b>T4-K.2</b> The influence of procedural justice on support for labeling GM foods <i>Dixon GN, McComas K, Besley J</i> <i>Washington State University, Cornell University, Michigan State University</i></p> <p><b>4:10 PM</b> <b>T4-K.3</b> The affect heuristic influences perception of probability information <i>Siegrist M, Sütterlin B</i> <i>ETH Zurich, Switzerland</i></p>
--	--	---	--	---

<b>Tuesday Sessions Sponsored by Specialty Groups</b>			
T2-B	EBASG, SBCA	T3-E	MRASG
T2-E	MRASG	T3-H	DRSG
T2-H	DRSG	T4-B	EBASG, SBCA
T2-I	OHSSG	T4-G	ENMSG
T3-B	EBASG, SBCA	T4-I	OHSSG
T3-C	EBASG, SBCA	T4-J	MRASG

5:00-6:00

*Plaza Ballroom D*

**T5-F Roundtable: Risk & Transparency: Learning from Research and Practice**

*Chair: Ragnar Lofstedt*

*Panelists:*

*Ann Bostrom*

*Frederic Boudier*

*Jonathan Gledhill*

*James Hammitt*

*Katherine McComas*

*Bob O'Connor*

*Lisa Robinson*

*Dominic Way*

The goal of this roundtable is to stimulate lively discussion and further state-of-the-art thinking on risk & transparency. Many academics and practitioners have strongly argued for enhancing transparency in the assessment, management and communication of risk, especially in policy domains related to health, the environment and safety. Advocates often state that transparency is a positive good that can, for instance, (re)build trust, promote accountability, improve safety, or even prevent crises. Yet, others have challenged these claims stressing that the concept and policies need much more careful and critical examination, often citing potential unintended or counterintuitive outcomes. By reflecting and reappraising a wealth of experience from research and practice, panelists with a range of disciplinary/ policy backgrounds will debate issues around risk & transparency. Each panelist will present for 10 minutes with the intention of stimulating discussion from the audience.

5:15-7:00

*Plaza Ballroom F*

**T5-H Symposium: IRIS Café: Open Space Discussion**

*Co-Chairs: Nancy Beck,*

*Vincent Coglianò*

This session should be categorized as a Roundtable, with one main speaker, Dr. Ken Olden. The rest of the session will be facilitated discussion. In May 2014 the National Academies released another report providing EPA and stakeholders with constructive feedback to help the IRIS program continue on its path of continuous improvement. Many enhancements have been seen since 2011 and they have focused primarily on improving the process, openness, and stakeholder engagement. However there are still more important decisions about approaches and methodologies that need to be made and recent advice from the NAS helps to inform the path forward. Recent SRA IRIS symposiums have focused on process changes, including stakeholder engagement. This session will be slightly different and allow for a more participatory dialogue among IRIS leaders and stakeholders. After presentation of an overview and future vision by Dr. Ken Olden, the director for the National Center for Environmental Assessments (NCEA), this session will consist of a facilitated discussion focusing on gathering input and feedback from all participants to inform how the IRIS program can continue to enhance its scientific approach to weighing and integrating evidence. Based on the status of implementation in December 2014, the facilitated discussion

will focus participants on specific areas where feedback and input would be most timely and helpful. This will likely include topics such as criteria for identifying evidence, judging the quality and relevance of data, and approaches for integrating evidence from all data streams, including mechanistic information, using a transparent and systematic framework. Notes will be taken in real-time and displayed for all participants to ensure that the key recommendations are captured and prioritized for future discussions.

**Be sure to stop by any of the Specialty Group Mixers**

**Specialty Group Mixers**

Tuesday, 12/9 – 6:00–7:30 PM

Mixer 1 - DRSG, MRASG, EASG, ARMSG - *Plaza Court 2*

Mixer 2 - SDSG, DARSG, EISG, FRSG - *Plaza Court 3*

Mixer 3 - RCSG, OHSG, ERASG - *Plaza Court 4*

Mixer 4 - EBASG, ENMSG, RPLSG, RDSG - *Plaza Court 5*

www.SRA.org

SRA Headquarters, 1313 Dolley Madison Boulevard, Suite 402, McLean, Virginia 22101

703.790.1745; FAX: 703.790.2672 SRA@BurkInc.com



**Mark your calendar!**

**Dates for the 2015 - 2017 Annual Meetings:**

**2015 - 6-9 December**

*Crystal Gateway Marriott, Arlington, Virginia*

**2016 - 11-15 December**

*Sheraton San Diego, California*

**2017 - 10-14 December**

*Crystal Gateway Marriott, Arlington, Virginia*

<p><b>8:30 - 10:00 AM</b> <i>Plaza Court 1</i> <b>W1-A Safety Decisions: From Transportation to Medical and Consumer Products</b> <i>Chair: Christine Beaudrie</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Plaza Court 6</i> <b>W1-B Advances in Managing Risk Using Economics</b> <i>Chair: Laura Bakkenen</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Governors Square 10</i> <b>W1-C Symposium: Assessing and Managing Risks of Indigenous Communities Displaced by Climate Phenomena</b> <i>Chair: Mervyn Tano</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Governors Square 11</i> <b>W1-D Symposium: Modeling and Validating Attacker-Defender Games Part I</b> <i>Chair: Jun Zhuang</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Governors Square 12</i> <b>W1-E Microbial Risk Analysis Tools Supporting Decision Analysis</b> <i>Chair: Naomi Cogger</i></p>	<p><b>8:30 - 10:10 AM</b> <i>Governors Square 15</i> <b>W1-F Air Pollution Exposure</b> <i>Chair: Linyu Xu</i></p>
<p><b>8:30 AM</b> <b>W1-A.1</b> Preferences for saving lives: an empirical study of small-scale accidents <i>Olivola CY, Rbeinberger CM, Hammitt JK*</i> <i>Carnegie Mellon University, Toulouse School of Economics, Harvard University</i></p>	<p><b>8:30 AM</b> <b>W1-B.1</b> Radioactive futures: the problem with intergenerational radioactive waste disposal compliance periods <i>Lee RC, Black PB, Crowe BM</i> <i>Neptune and Company, Inc.</i></p>	<p><b>8:30 AM</b> <b>W1-C.1</b> Managing risks to climate-threatened cultural landscapes of indigenous peoples <i>Tano MT</i> <i>International Institute for Indigenous Resource Management</i></p>	<p><b>8:30 AM</b> <b>W1-D.1</b> Calibration of expert judgments in counter-terrorism risk assessment <i>Bler VM, Shin J, Kosanoglu F</i> <i>University of Wisconsin-Madison</i></p>	<p><b>8:30 AM</b> <b>W1-E.1</b> The FDA-iRISK® tool: new features and case studies on chemical and microbial hazards <i>Chen Y, Dennis S, Pouillot R, Carrington C, Paoli G</i> <i>Food and Drug Administration, Risk Sciences International</i></p>	<p><b>8:30 AM</b> <b>W1-F.1</b> Carcinogenic air toxics exposure and their health impacts in the United States <i>Zhou Y, Li C, Mumtaz MM</i> <i>Centers for Disease Control and Prevention (CDC)</i></p>
<p><b>8:50 AM</b> <b>W1-A.2</b> RIMAS: a risk analysis methodology for aviation safety <i>Herráiz E, Elvira V, Hernández-Coronado P, R'os Insua D, Alfaro G, Gomez J</i> <i>Spanish National Aviation Authority (AESA), Royal Academy of Sciences and SKITES</i></p>	<p><b>8:50 AM</b> <b>W1-B.2</b> Flood risk reduction benefits and costs in Louisiana's 2012 Coastal Master Plan <i>Fischbach JR, Johnson DR, Groves DG, Sharon C</i> <i>RAND Corporation</i></p>	<p><b>8:50 AM</b> <b>W1-C.3</b> The roles of culture and science in climate change related migration decisions <i>Lazrus H</i> <i>National Center for Atmospheric Research</i></p>	<p><b>8:50 AM</b> <b>W1-D.2</b> Validation of adversary models, a gaming perspective <i>Lathrop JF, Ezell BC</i> <i>Innovative Decisions, Inc.</i></p>	<p><b>8:50 AM</b> <b>W1-E.2</b> Evaluation of the performances of the existing methods for public health-based risk ranking of microbial hazards in the food chain <i>Sanaa M</i> <i>French Agency for Food, Environmental and Occupational Health &amp; Safety</i></p>	<p><b>8:50 AM</b> <b>W1-F.2</b> Indoor and outdoor health risk assessment of inhalable particulate matter phase PAHs during heating season in Beijing, China <i>Yin HY, Xu LX</i> <i>Beijing Normal University</i></p>
<p><b>9:10 AM</b> <b>W1-A.3</b> Network analysis for the safety surveillance of medical products <i>Botsis TB, Scott JS, Ball RB, Forshee RF</i> <i>US Food and Drug Administration and University of Tromsø</i></p>	<p><b>9:10 AM</b> <b>W1-B.3</b> Revealing the willingness to pay for income insurance in agriculture <i>Pérez-Blanco CD, Gómez CM</i> <i>Fondazione Eni Enrico Mattei and Centro Euro-Mediterraneo sui Cambiamenti Climatici</i></p>	<p><b>9:10 AM</b> <b>W1-C.4</b> Assessing and managing risks to the social and cultural integrity of climate-displaced indigenous communities <i>Harris S</i> <i>Confederated Tribes of the Umatilla Indian Reservation</i></p>	<p><b>9:10 AM</b> <b>W1-D.3</b> Optimal allocation of defensive resources in countering terrorism: modeling and validating <i>Zhang JZ, Zhuang JZ</i> <i>University at Buffalo, the State University of New York</i></p>	<p><b>9:10 AM</b> <b>W1-E.3</b> Risk based surveillance good in theory but how do we find the risky group? <i>Cogger N, Jaros P</i> <i>Massey University</i></p>	<p><b>9:10 AM</b> <b>W1-F.3</b> 2013 air monitoring results and risk-based action levels for arsenic at giant mine <i>Magee BH, Halbert BE, Phillips H, Kirkaldy J, Campbell BE, MacDonald S</i> <i>ARCADIS</i></p>
<p><b>9:30 AM</b> <b>W1-A.4</b> Evaluation of the risks of unfinished recalls <i>Mikami Y, Zhang K</i> <i>Nagaoka University of Technology</i></p>	<p><b>9:30 AM</b> <b>W1-B.4</b> Risk and adaptation incentives: evidence from global hurricane damages and fatalities <i>Bakkenen LA, Mendelsohn RO</i> <i>University of Arizona, Yale University</i></p>	<p><b>9:30 AM</b> <b>W1-C.5</b> The social-cultural context of risk in rural Nepal <i>Sherry J, Curtis A, Laird S, Toman E</i> <i>Charles Sturt University</i></p>	<p><b>9:30 AM</b> <b>W1-D.4</b> Adversary modeling in Stackelberg security games <i>Cui J, John RS</i> <i>University of Southern California</i></p>	<p><b>9:30 AM</b> <b>W1-E.4</b> An assessment of prevalence-based models for predicting the public-health effects of microbial food-safety policies <i>Ebel ED, Williams MS</i> <i>Food Safety and Inspection Service, USDA</i></p>	<p><b>9:30 AM</b> <b>W1-F.4</b> Exploring inequalities in environmental hazard exposure: the case of Santiago, Chile <i>Jimenez RB, Blazquez C</i> <i>Andres Bello University, Chile</i></p>
				<p><b>9:30 AM</b> <b>W1-E.5</b> Biomonitoring as a tool for risk analysis for industrial emissions: the case of cement production <i>Augusto S, Pinho P, Santos A, Botelho M, Palma-Oliveira J, Brunquinho C</i> <i>Universidade de Lisboa</i></p>	

## Wednesday

<p><b>8:30 - 10:10 AM</b> <i>Plaza Ballroom E</i></p> <p><b>W1-G Foundational Issues IV</b> <i>Chair: Ulrika Sablin</i></p> <p><b>8:30 AM W1-G.1</b> Can policy be risk-based? A reality check based in the cultural theory of risk. <i>Duckett DD</i> <i>The James Hutton Institute</i></p> <p><b>8:50 AM W1-G.2</b> Methodological foundations for integrating socio-technical risk analysis with big data analytics <i>Pence J, Mohaghegh Z</i> <i>University of Illinois Urbana-Champaign</i></p> <p><b>9:10 AM W1-G.3</b> Risk assessment report card <i>Shamoun DY, Calabrese EJ</i> <i>Mercatus Center at George Mason University</i></p> <p><b>9:30 AM W1-G.4</b> Case studies of acceptable risk: paving the way for the risk-specific dose <i>Fox MA, Baksh S, Lam J</i> <i>Johns Hopkins University</i></p> <p><b>9:50 AM W1-G.5</b> Multiple elicitations: the internal inconsistency of everyday decisions <i>Bessette DL, Arrai JL</i> <i>University of Calgary</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Plaza Ballroom F</i></p> <p><b>W1-H Symposium: Implementation of EPA's HHRA Framework, Part I</b> <i>Co-Chairs: Julie Fitzpatrick, Rita Schoeny</i></p> <p><b>8:30 AM W1-H.1</b> EPA's framework for human health risk assessment to inform decision making <i>Fitzpatrick JW, Schoeny R, Gallagher K, Obanian E</i> <i>US Environmental Protection Agency</i></p> <p><b>8:50 AM W1-H.2</b> IRIS and EPA's framework for human health risk assessment <i>Cogliano VJ</i> <i>US Environmental Protection Agency</i></p> <p><b>9:10 AM W1-H.3</b> EPA's framework for human health risk assessment for informed decision: risk assessments informing air quality decisions <i>Murphy DL, Pekar Z*</i> <i>US Environmental Protection Agency</i></p> <p><b>9:30 AM W1-H.4</b> EPA's framework for human health risk assessment to inform decision making: an industry perspective <i>Lewis RJ, Beck N</i> <i>ExxonMobil Biomedical Sciences, Inc., American Chemistry Council</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Governors Square 14</i></p> <p><b>W1-I Symposium: Retrospective Exposure Methods, Utility, and Challenges (Part I)</b> <i>Chair: Fred Boelter</i></p> <p><b>8:30 AM W1-I.1</b> Development and validation of pharmacokinetic modeling for a new occupational lead exposure standard in California <i>Kosnett M</i> <i>University of Colorado, Denver</i></p> <p><b>8:50 AM W1-I.2</b> Strategies for analyzing censored datasets <i>Hewett P</i> <i>Exposure Assessment Solutions, Inc.</i></p> <p><b>9:10 AM W1-I.3</b> Evaluation of retrospective exposure assessment validity: stochastic analysis estimates of sensitivity and specificity from inter-rater kappas and exposure prevalence <i>Armstrong TW</i> <i>TWA8HR Occupational Hygiene Consulting, LLC</i></p> <p><b>9:30 AM W1-I.4</b> Development of metamodels for predicting aerosol dispersion in ventilated spaces <i>Haas CN, Hoque S, Farouk B</i> <i>Drexel University</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Plaza Ballroom D</i></p> <p><b>W1-J Symposium: Natural Hazards Risk Perception and Response</b> <i>Chair: Michael Lindell</i></p> <p><b>8:30 AM W1-J.1</b> Risk perception and affect as determinants of immediate behavioral response to earthquakes in Christchurch New Zealand and Hitachi Japan <i>Lindell MK</i> <i>Texas A&amp;M University and University of Washington</i></p> <p><b>8:50 AM W1-J.2</b> Moving beyond "Have you experienced a tornado?" Developing a valid scale of past experiences for tornado risks <i>Demuth JL</i> <i>NCAR and Colorado State University</i></p> <p><b>9:10 AM W1-J.3</b> The role of risk perception and other drivers in adaptation to weather and climate-related hazards at the municipal scale in the US Mountain West <i>Dilling L, Berggren J, Ravikumar A, Anderson K</i> <i>University of Colorado Boulder</i></p> <p><b>9:30 AM W1-J.4</b> How do people perceive and respond to flash flood risks and alerts? Survey findings from Boulder, Colorado <i>Mors RE, Lazo JK, Mulder KJ, Demuth JL</i> <i>National Center for Atmospheric Research</i></p>	<p><b>8:30 - 10:00 AM</b> <i>Governors Square 16</i></p> <p><b>W1-K Risk Communications and Social Media</b> <i>Chair: Nathalie de Marcellis-Warin</i></p> <p><b>8:30 AM W1-K.1</b> Print media framing of risk perception: the case of chronic cerebrospinal venous insufficiency/liberation therapy procedure <i>Dassab E, Driedger SM</i> <i>University of Manitoba</i></p> <p><b>8:50 AM W1-K.2</b> Spilled chemicals and new media in Appalachia: the role of social media in the Elk River chemical spill <i>Simis MJ</i> <i>University of Wisconsin-Madison</i></p> <p><b>9:10 AM W1-K.4</b> Risk perception and social media <i>De Marcellis-Warin N, Hosseinali Mirza V, Warin T</i> <i>Ecole Polytechnique de Montreal and CIRANO and HEC Montreal</i></p> <p><b>9:30 AM W1-K.5</b> Anti-social media: public perception of computer-mediated risk communication using locative media and government open data <i>Wardman JK, Garbett A, Lineban C, Kirman B, Lawson S</i> <i>The University of Hong Kong, Newcastle University, University of Lincoln</i></p>
---	---	--	---	--

### Book Signing & Coffee Break

10:00-10:30 AM

*Plaza Ballroom Foyer*

Meet the Plenary Speakers:

Kathleen Tierney

*"The Social Roots of Risk: Producing Disasters, Promoting Resilience"*

Susan Cutter

*"Hurricane Katrina and the Forgotten Coast of Mississippi"*

<p><b>10:30 AM - Noon</b> <i>Plaza Court 1</i> <b>W2-A Predictive Decision Tools for Chemical and Microbial Hazards and Mortality Estimates</b> <i>Chair: Margaret MacDonnell</i> <b>10:30 AM W2-A.2</b> Managing chemical risk through alternatives assessments: case studies and current initiatives <i>Brown L, Connor E</i> <i>Abt Associates, Inc.</i></p> <p><b>10:50 AM W2-A.3</b> Modeling emergency response notification tool in response to chemical releases <i>Howard PM, Kuck J</i> <i>ABS Consulting Inc.</i></p> <p><b>11:10 AM W2-A.4</b> The application of chemical dispersion models to indoor and outdoor populations <i>Thomas T, Arimoto CW, Howard PM, Randolph MA</i> <i>ABSG Consulting Inc.</i></p> <p><b>11:30 AM W2-A.5</b> Predictive model for baseline mortality rates in the United States <i>Belova A, Haskell JM, Corrales MC</i> <i>Abt Associates Inc.</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Court 6</i> <b>W2-B Symposium: Assessing the Impact of Risk Management Strategies</b> <i>Chair: Aylin Sertkaya</i> <b>10:30 AM W2-B.1</b> Estimating benefits and costs for pedestrian crash-imminent-braking systems <i>Good DH, Li L, Chien S, Krutilla K, Chen Y</i> <i>Indiana University</i></p> <p><b>10:50 AM W2-B.2</b> Regulation of chemical risks: lessons for TSCA reform from Canada and the European Union <i>Abelkop A, Graham J</i> <i>Indiana University</i></p> <p><b>11:10 AM W2-B.3</b> The timing of health and longevity impacts associated with exposure to coal mine dust <i>Ashley EM</i> <i>Office of Management and Budget</i></p> <p><b>11:30 AM W2-B.4</b> Examining the social value of antibacterial drugs <i>Sertkaya A, Jessup A, Wong H</i> <i>Eastern Research Group, Inc., HHS</i> <i>Office of the Assistant Secretary for Planning and Evaluation</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 10</i> <b>W2-C Managing Risk for Transportation Networks</b> <i>Chair: Eva Andrijevic</i> <b>10:30 AM W2-C.1</b> Estimating the effects of climate change on highway infrastructure flood damage <i>Camp JS, Abkovitz MD</i> <i>Vanderbilt University</i></p> <p><b>10:50 AM W2-C.2</b> Exploring game-theoretic approaches for modeling transportation network security risks <i>Chatterjee S, Perkins CJ, Oster MR, Brigantic RT</i> <i>Pacific Northwest National Laboratory</i></p> <p><b>11:10 AM W2-C.3</b> Probability analysis of multiple-tank-car release incidents in railway hazardous materials transportation <i>Lin X, Saat MR, Barkean CPL, Lin X</i> <i>University of Illinois at Urbana-Champaign</i></p> <p><b>11:30 AM W2-C.4</b> Understanding resilience of metro systems in polycentric megacities: a case study of Delhi metro rail system <i>Chopra SS, Khanna V, Chopra S</i> <i>University of Pittsburgh</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 11</i> <b>W2-D Symposium: Modeling and Validating Attacker-Defender Games Part II</b> <i>Chair: Jun Zhuang</i> <b>10:30 AM W2-D.1</b> Defensive resource allocations for an assembly occupancy system in a sequential defender-attacker game <i>Li SY, Zhuang J, Shen SF</i> <i>Tsinghua University</i></p> <p><b>10:50 AM W2-D.2</b> Game theory in the field: evaluation of deployed decision aids <i>Tambe M, DelleFave F, Ford B, Zhang C</i> <i>University of Southern California</i></p> <p><b>11:10 AM W2-D.3</b> Adversarial risk analysis models of opponent behavior <i>Rios Insua D, Rios J, Banks DL</i> <i>Duke University</i></p> <p><b>11:30 AM W2-D.4</b> A multiple-target defensive resource allocation game with quantal-response attacking strategies <i>Wang Y, Zhuang J</i> <i>University of Michigan, University at Buffalo</i></p>	<p><b>10:00 AM - Noon</b> <i>Governors Square 12</i> <b>W2-E Symposium: Risk Assessments Through Lens of Interactions Among Assessors, Manager, and Constituents</b> <i>Co-Chairs: Wendy Fanaselle, Y. Chen</i> <b>10:30 AM W2-E.1</b> FDA/CFSAN framework for risk analysis: challenges and opportunities for interactions <i>Dennis S, Chen Y</i> <i>Food and Drug Administration</i></p> <p><b>10:50 AM W2-E.2</b> Case studies: different risk assessments and lessons learned from interactions <i>Fitzpatrick S, Van Doren JM, Pouillot R, Fanaselle W</i> <i>Center for Food Safety and Applied Nutrition, Food and Drug Administration</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 15</i> <b>W2-F Roundtable: A Discussion on Risk Reduction from the Disaster Management Perspective</b> <i>Chair: Deborah Thomas</i> <i>Panelists:</i> <i>Kimberly Brinker, CDC/NIOSH: Occupational Risks in Disasters</i> <i>Bill McCormick, State of Colorado: Dam Safety: Moving Beyond Consequence Analysis</i> <i>Carole Walker, Rocky Mountain Insurance Information Association: Insurance Perspectives on Reducing Disaster Risk</i> <i>Oleg Wilbelmi, National Center for Atmospheric Research: Adaptive Capacity and Disasters</i> <i>Deborah Thomas, University of Colorado: Social Vulnerability Reduction</i></p>
---	--	---	--	--	---

**Plenary Luncheon**  
*Noon-1:30 PM*  
*Plaza Ballroom ABC*

“Natural Disaster Risks: Strategies for Adaptation and Risk Management”

(Luncheon is included in Registration fee)

## Wednesday

<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom E</i></p> <p><b>W2-G Symposium: Advancing Alternative Testing Strategies for Emerging Nanoscale Materials: A Workshop Report</b> <i>Chair: Jo Anne Shatkin</i></p> <p><b>10:30 AM</b>                      <b>W2-G.2</b> Advancing in vitro testing of nanomaterials with human-relevant exposure conditions <i>Clippinger AJ</i> <i>PETA International Science Consortium, Ltd.</i></p> <p><b>10:50 AM</b>                      <b>W2-G.3</b> A gap analysis of the hazard knowledge available for nanomaterials <i>Stone V, Balbarry D, Johnston H</i> <i>Heriot Watt University</i></p> <p><b>11:10 AM</b>                      <b>W2-G.4</b> Alternative testing approaches using bacteria to assess manufactured nanomaterial environmental hazards <i>Holden PA, Godwin HS, Nisbet RM</i> <i>University of California, Santa Barbara, University of California, Los Angeles</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom F</i></p> <p><b>W2-H Symposium: Implementation of EPA's HHRA Framework, Part II</b> <i>Co-Chairs: Julie Fitzpatrick, Rita Schoeny</i></p> <p><b>10:30 AM</b>                      <b>W2-H.1</b> Use of the framework for human health risk assessment by EPA's waste and cleanup programs <i>Foster SD, Gallagher S, Raffaele K, Scorzafava M</i> <i>USEPA</i></p> <p><b>10:50 AM</b>                      <b>W2-H.2</b> Application of the framework for human health risk assessment to inform decision making in conducting chemical risk assessments under the toxic substance control act <i>Henry TR, Anitole K, Austin K, Barone S*, Baier-Anderson C, Benson A, Camacho I, Eisenreich K, Laessig S, Oxenidine S</i> <i>US Environmental Protection Agency</i></p> <p><b>11:10 AM</b>                      <b>W2-H.3</b> The use of a structured design approach for risk assessment in the regulatory context - the example of EPA's national-scale Hg risk assessment for electric generating units <i>Pekar Z, Fann N, Hubbell B</i> <i>US Environmental Protection Agency</i></p> <p><b>11:30 AM</b>                      <b>W2-H.4</b> EPA's framework presenter discussion panel <i>Fitzpatrick JW, Schoeny R</i> <i>US Environmental Protection Agency</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 14</i></p> <p><b>W2-I Symposium: Retrospective Exposure Methods, Utility, and Challenges (Part II)</b> <i>Chair: Fred Boelter</i></p> <p><b>10:30 AM</b>                      <b>W2-I.1</b> Quantitative cancer criteria for inorganic arsenic exposure via inhalation: a non-linear approach <i>Lewis AS, Beyer LA, Zu K</i> <i>Gradient</i></p> <p><b>10:50 AM</b>                      <b>W2-I.2</b> Recreating a historical product and designing testing methods to characterize exposures retrospectively <i>Persky JD</i> <i>ENVIRON International Corp.</i></p> <p><b>11:10 AM</b>                      <b>W2-I.3</b> Computational Fluid Dynamic (CFD) modeling as a tool in retrospective exposure assessment: application, value, validation, and limitations <i>Rasmuson J, Hall D</i> <i>Chemistry &amp; Industrial Hygiene, Inc.</i></p> <p><b>11:30 AM</b>                      <b>W2-I.4</b> Improving qualitative exposure judgment accuracy in retrospective exposure assessment <i>Arnold SF, Ramachandran G, Stenzel M, Drolet D</i> <i>University of Minnesota, Division of Environmental Health Science</i></p>	<p><b>10:30 AM - Noon</b> <i>Plaza Ballroom D</i></p> <p><b>W2-J Natural Hazards and Disasters</b> <i>Chair: SM Friedman</i></p> <p><b>10:30 AM</b>                      <b>W2-J.1</b> Health impacts of long-term displacement following Hurricane Sandy <i>Greenberg MR</i> <i>Rutgers University</i></p> <p><b>10:50 AM</b>                      <b>W2-J.2</b> Do I stay or do I go? Exploring predictors of behavioral decision-making during Hurricane Sandy <i>Rickard LN, Eosco GM*, Scherer CW</i> <i>SUNY College of Environmental Science and Forestry, Cornell University</i></p> <p><b>11:10 AM</b>                      <b>W2-J.3</b> Earthquake risk perceptions in a U.S. East Coast urban area <i>Friedman SM, Egolf BP</i> <i>Lehigh University</i></p> <p><b>11:30 AM</b>                      <b>W2-J.4</b> Public perceptions of extreme heat vulnerability in the US <i>Hove PD</i> <i>Utah State University</i></p>	<p><b>10:30 AM - Noon</b> <i>Governors Square 16</i></p> <p><b>W2-K Visual Communications</b> <i>Chair: Carmen Keller</i></p> <p><b>10:30 AM</b>                      <b>W2-K.1</b> Why use pictorial formats for risk communication? Information processing strategies by high and low numerates <i>Keller C, Kreuzmair C, Siegrist M</i> <i>ETH Zurich</i></p> <p><b>10:50 AM</b>                      <b>W2-K.2</b> The influence of interactive maps and data sufficiency on risk beliefs, ambiguity, and behavioral intentions for maps depicting water test results for private residential wells <i>Severtson DJ, Roth R, Sack C, Mead R</i> <i>University of Wisconsin-Madison</i></p> <p><b>11:10 AM</b>                      <b>W2-K.3</b> Communicating multidimensional risk data to a diverse set of stakeholders using the interactive risk visualization tool <i>Wilson PH, Fubry M, Davidson A, Hawkins BE, Gooding RE, Cox JA</i> <i>Battelle Memorial Institute and Department of Homeland Security Chemical Security Analysis Center</i></p> <p><b>11:30 AM</b>                      <b>W2-K.4</b> Visualization in macroprudential risk analysis &amp; decision making <i>Paddrik M, Flood M</i> <i>Office of Financial Research, US Treasury</i></p>
---	--	---	---	---

<b>Wednesday Sessions Sponsored by Specialty Groups</b>			
<i>W1-E</i>	<i>MRASG</i>	<i>W2-I</i>	<i>OHSSG</i>
<i>W1-H</i>	<i>DRSG</i>	<i>W3-H</i>	<i>DRSG</i>
<i>W1-I</i>	<i>OHSSG</i>	<i>W3-I</i>	<i>OHSSG</i>
<i>W1-J</i>	<i>RCSG</i>	<i>W3-J</i>	<i>RCSG</i>
<i>W2-B</i>	<i>EBASG, SBCA</i>	<i>W4-B</i>	<i>EBASG, SBCA</i>
<i>W2-E</i>	<i>MRASG</i>	<i>W4-E</i>	<i>RCSG</i>
<i>W2-G</i>	<i>ENMSG</i>	<i>W4-I</i>	<i>OHSSG</i>
<i>W2-H</i>	<i>DRSG</i>		

<p><b>1:30 - 3:00 PM</b> <i>Plaza Court 1</i> <b>W3-A Decision Making for Natural Disasters</b> <i>Chair: Henry Willis</i></p> <p><b>1:30 PM</b>      <b>W3-A.1</b> Information imperfection assessment in decision-aiding methods: application to risk management in mountains areas <i>Tacnet JM, Dezert J, Curt C, Richard D</i> <i>Irstea - Snow Avalanche Engineering and Torrent Control Research Unit</i></p> <p><b>1:50 PM</b>      <b>W3-A.2</b> Scenario analysis of Japanese society after the 2011 earthquake, tsunami, and nuclear disaster <i>Maeda Y, Seo K, Motoyoshi T Shizuoka University, Aoyama Gakuin University, Kansai University</i></p> <p><b>2:10 PM</b>      <b>W3-A.3</b> Characterizing national vulnerabilities from infrastructure disruptions by natural disasters <i>Willis HH, Fischbach J, Warren D, LaTourrette T, Narayanan A, Stelzner C, Wilder G, Loa K RAND Corporation</i></p> <p><b>2:30 PM</b>      <b>W3-A.4</b> Flexible design to increase resilience to natural disasters <i>Read LK, Fox-Lent C, Bates M, Vogel RM, Linkov I Tufts University, Environmental Laboratory, US Army Engineer Research and Development Center, Environmental Laboratory</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Plaza Court 6</i> <b>W3-B Symposium: Advances in Economic Consequences: Analysis of Terrorism and Natural Disasters</b> <i>Chair: Adam Rose</i></p> <p><b>1:30 PM</b>      <b>W3-B.1</b> Understanding and mitigating the impacts of massive relocations from disasters <i>Bier VM University of Wisconsin-Madison</i></p> <p><b>1:50 PM</b>      <b>W3-B.2</b> Consequence analysis for DHS chemical-sector risk and resilience programs: a retrospective <i>Pepple MA, Ehlen WA* National Infrastructure Simulation &amp; Analysis Center (NISAC), Sandia National Laboratories</i></p> <p><b>2:10 PM</b>      <b>W3-B.3</b> A framework for estimating the impact of cyber threats to the US economy <i>Cheesebrough AJ US Department of Homeland Security</i></p> <p><b>2:30 PM</b>      <b>W3-B.4</b> Advances in the Center for Risk and Economic Analysis of Terrorism Events (CREATE) framework for economic consequence analysis <i>Rose AZ University of Southern California</i></p>	<p><b>1:30 - 3:10 PM</b> <i>Governors Square 10</i> <b>W3-C Symposium: Sustainability</b> <i>Chair: Nateghi Roshanak</i></p> <p><b>1:30 PM</b>      <b>W3-C.1</b> Achieving urban sustainability in disaster-prone regions - why risk analysis is critical <i>Gnikema SD Johns Hopkins University</i></p> <p><b>1:50 PM</b>      <b>W3-C.2</b> All-hazard approaches to infrastructure risk reduction: effective investments through pluralism <i>Reilly AC, Gnikema SD, Nateghi R Johns Hopkins University</i></p> <p><b>2:10 PM</b>      <b>W3-C.3</b> Constructing rainfall projections to guide municipal wastewater management: an approach for operationalizing IPCC scenarios using local data <i>Saber-Freedman N, Schmitt K, Francis R Concordia University, George Washington University</i></p> <p><b>2:30 PM</b>      <b>W3-C.4</b> People's decisions and hurricane wind damages: an Agent-Based Model (ABM) approach <i>Zhu L, Gnikema SD, Igusa T, Banerji T Johns Hopkins University</i></p> <p><b>2:50 PM</b>      <b>W3-C.5</b> Risk-informed investment decision frameworks to mitigate the impacts of disasters on power systems <i>Nateghi R Johns Hopkins University</i></p>	<p><b>1:30 - 3:10 PM</b> <i>Governors Square 11</i> <b>W3-D Symposium: What's that Smell? The Elk River Crude MCHM Spill</b> <i>Chair: Jacqueline Patterson</i></p> <p><b>1:30 PM</b>      <b>W3-D.1</b> Short term health advisories for Elk River crude MCHM spill <i>Patterson J Toxicology Excellence for Risk Assessment (TERA)</i></p> <p><b>1:50 PM</b>      <b>W3-D.2</b> Expert evaluation of chemical spill of crude MCHM into the Elk River, the West Virginia Testing Assessment Project (WV TAP) <i>Rosen JS, Whelton AJ Corona Environmental Consulting</i></p> <p><b>2:10 PM</b>      <b>W3-D.3</b> Establishing an odor detection threshold for crude MCHM and design of larger sampling plan <i>Rosen JS Corona Environmental Consulting</i></p> <p><b>2:30 PM</b>      <b>W3-D.4</b> Understanding tap water chemical levels in affected homes: detection limits, breakdown products, in-home locations <i>Whelton AJ University of South Alabama</i></p> <p><b>2:50 PM</b>      <b>W3-D.5</b> Licorice and lessons learned <i>Whelton AJ, Rosen JS, Patterson J University of South Alabama</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Governors Square 12</i> <b>W3-E Synthetic Biology and Risk Assessment</b> <i>Co-Chairs: Adam Finkel, Katherine von Stackelberg</i></p> <p><b>1:30 PM</b>      <b>W3-E.1</b> Channeling synthetic biology through "solution-focused risk assessment" <i>Finkel AM, Maynard A, Bowman D, Trump B University of Pennsylvania Law School, University of Michigan School of Public Health</i></p> <p><b>1:50 PM</b>      <b>W3-E.2</b> Toward a risk analysis framework for synthetic biology <i>Greidinger SJ, Greidinger S Predictive Health Solutions</i></p> <p><b>2:10 PM</b>      <b>W3-E.3</b> Shaping ecological risk research for synthetic biology <i>Kuiken T, Oye K, Collins J Woodrow Wilson Center</i></p> <p><b>2:30 PM</b>      <b>W3-E.4</b> Multidimensional risk profiling: a scenario-based evaluation of synthetic biology applications from a multidisciplinary expert Delphi study <i>Cummings CL, Kuzma J Nanyang Technological University</i></p>	<p><b>1:30 - 3:00 PM</b> <i>Governors Square 15</i> <b>W3-F Climate Change: Expert Judgment and Public Perception</b> <i>Chair: Ortwin Renn</i></p> <p><b>1:30 PM</b>      <b>W3-F.1</b> Representing expert judgments about climate damages using imprecise probabilities <i>Gerst MD, Rinderknecht SL, Reichert P, Kuensch HR, Borsuk ME Dartmouth College</i></p> <p><b>1:50 PM</b>      <b>W3-F.2</b> Climate change scepticism and adaptation - a fresh start <i>Sposato RG, Pidgeon N, Whitmarsh L, Ballinger R Cardiff University</i></p> <p><b>2:10 PM</b>      <b>W3-F.3</b> Forecasting a definitive future with global warming widens the partisan divide regarding existence beliefs <i>Rob S, Schuldt JP Cornell University</i></p>
--	--	--	--	---	--

**Book Signing & Coffee Break**  
3:00-3:30 PM, *Plaza Ballroom Foyer*  
Meet the Plenary Speakers:

Kathleen Tierney  
and  
Susan Cutter

**1:30 - 3:00 PM**  
*Plaza Ballroom E*  
**W3-G Symposium: Data Emerging Technologies, Part I**  
*Co-Chairs: Kenneth Olden, Abdel Kadry*  
**1:30 PM W3-G.1**  
 Complexities of environmental risk factors and public health  
*Olden K*  
*US Environmental Protection Agency*

**1:50 PM W3-G.2**  
 Big data: the role of the federal government in transforming environmental health information into knowledge  
*Dearry A*  
*National Institute of Environmental Health Sciences, National Institutes of Health*

**2:10 PM W3-G.3**  
 Use of epigenetic information in risk assessment  
*Devlin RB*  
*US Environmental Protection Agency*

**2:30 PM W3-G.4**  
 Assessment of inter-individual variability in chemical safety testing: replacing defaults with scientific evidence  
*Rusyn I*  
*Texas A&M University*

**1:30 - 3:00 PM**  
*Plaza Ballroom F*  
**W3-H Symposium: Relatively New Frontiers in Regulatory Science: Tobacco**  
*Chair: Raymond Yeager*  
**1:30 PM W3-H.1**  
 Tobacco product regulation is a multifactorial scientific process: an overview of the CTP regulatory framework  
*Benson KA*  
*US Food and Drug Administration Center for Tobacco Products*

**1:50 PM W3-H.2**  
 Dose-response in tobacco product regulation: considerations in toxicology and risk  
*Yeager RP*  
*US Food and Drug Administration Center for Tobacco Products*

**2:10 PM W3-H.3**  
 Diversity in research to support tobacco product regulation  
*van Bommel DM*  
*US Food and Drug Administration Center for Tobacco Products*

**2:30 PM W3-H.4**  
 Question and answer session for relatively new frontiers in regulatory science: FDA Center for Tobacco Products  
*Benson KA, Yeager RP, van Bommel DM*  
*US Food and Drug Administration Center for Tobacco Products*

**1:30 - 3:00 PM**  
*Governors Square 14*  
**W3-I Symposium: Examining the Integration of Environmental and Occupational Data to Inform Human Health Risk Assessment**  
*CO-Chairs: Kevin Teichman, Douglas Johns*  
**1:30 PM W3-I.1**  
 Occupational health data and their role in the development of the Integrated Science Assessments  
*Johns DO, Sacks JD*  
*Centers for Disease Control and Prevention and US Environmental Protection Agency*

**1:50 PM W3-I.2**  
 The best available data: considerations in incorporating environmental studies and risk assessments into occupational risk assessment  
*Whittaker Sofge C, Park R*  
*NIOSH*

**2:10 PM W3-I.3**  
 Use of occupational data in deriving health effects reference values for the IRIS and AEGL Programs - can we do better?  
*Woodall GM*  
*US EPA, National Center for Environmental Assessment*

**2:30 PM W3-I.4**  
 Occupational health data for environmental exposure decisions  
*Abadin HG, Wheeler JS*  
*Agency for Toxic Substances and Disease Registry*

**1:30 - 3:00 PM**  
*Plaza Ballroom D*  
**W3-J Symposium: Evidence Based Transparency**  
*Chair: Frederic Bouder*  
**1:30 PM W3-J.1**  
 Factors affecting propensity to follow government advice in a flu outbreak  
*Evensen D, Way D, Bouder F*  
*Cornell University, King's College London, Maastricht University*

**1:50 PM W3-J.2**  
 Why do the French seem to like their medicines so much?  
*Bouder F*  
*Maastricht University*

**2:10 PM W3-J.3**  
 Transparency and trust in the European pharmaceutical sector: outcomes from an experimental study  
*Lofstedt R, Way D*  
*King's College London*

**2:30 PM W3-J.4**  
 Communicating about diseases in the ocean: the effect of message frames on marine policy support  
*McComas KA, Rob S, Schuldt J, Burge C*  
*Cornell University, University of Washington*

**1:30 - 3:00 PM**  
*Governors Square 16*  
**W3-K Mental Models**  
*Chair: Ann Bostrom*  
**1:30 PM W3-K.1**  
 Applying mental modeling technology™ to support stakeholder engagement for the Census Bureau's American Community Survey through research with individuals who work closely with ACS Stakeholders  
*Kovacs D, Thorne S, Butte G*  
*Decision Partners*

**1:50 PM W3-K.2**  
 Informing climate risk management strategy decision tools using the mental models approach  
*Mayer LA, Loa K\*, Cwik B, Gonnerman C, Lempert R, Tuana N, Keller K*  
*RAND Corporation*

**2:10 PM W3-K.3**  
 Mental models research with tobacco retailers in support of FDA Retailer Education Communications  
*Thorne S, Tessman G, Kovacs D, Butte G\*, Johnson RD*  
*Decision Partners, United States Food and Drug Administration, Center for Tobacco Products*

**2:30 PM W3-K.4**  
 Perceptions of climate risks and adaptation strategies in the New York Metropolitan Area after Superstorm Sandy  
*Miller S, Kidd G, Montalto EA, Gurian PL, Worral C, Lewis R*  
*Department of Civil, Architectural, and Environmental Engineering, Drexel University*

<p><b>3:30 - 5:00 PM</b> <i>Plaza Court 1</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Plaza Court 6</i></p>	<p><b>3:30 - 5:00 PM</b> <i>Governors Square 10</i></p>	<p><b>3:30 - 5:00 PM</b> <i>Governors Square 11</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Governors Square 12</i></p>	<p><b>3:30 - 5:10 PM</b> <i>Governors Square 15</i></p>
<p><b>W4-A Decision Analysis For Energy Options</b> <i>Chair: Shital Thekedi</i></p>	<p><b>W4-B Symposium: Risk Regulation and the Economic Value of Mortality Risk Reductions</b> <i>Chair: Nellie Lew</i></p>	<p><b>W4-C Symposium: Risk Analysis: Adaptive Management: Complex World of Administrative Law: Decision-Making for Environmental and NR projects</b> <i>Chair: Sally Kane, Charlie Menzje</i></p>	<p><b>W4-D National and International Military Issues</b> <i>Chair: Jay Rouse</i></p>	<p><b>W4-E Symposium: Understanding and Communicating Hazard Assessment</b> <i>Chair: George Gray</i></p>	<p><b>W4-F Multimedia Session: Understanding &amp; Adapting to the Impacts of Climate Change</b> <i>Chair: Wayne Landis</i></p>
<p><b>3:30 PM W4-A.1</b> Integrated risk framework and offshore wind energy in Europe and the US <i>Ram B</i> <i>University of Delaware, Danish Technical University</i></p>	<p><b>3:30 PM W4-B.1</b> The comparative cost of regulatory risk reduction <i>Krutilla K, Grabam J, Zhang Y, Piña G, Good DH</i> <i>Indiana University Bloomington</i></p>	<p><b>3:30 PM W4-C.1</b> Enhanced adaptive management: methods and application for natural resource and environmental projects <i>Foran C, Linkov I</i> <i>US Army Engineer Research and Development Center</i></p>	<p><b>3:30 PM W4-D.1</b> When (in)action speaks louder than words: the collapse of humanitarian values in foreign policy decisions <i>Slovic P, Gregory R, Frank D, Vastfjall D</i> <i>Decision Research and University of Oregon</i></p>	<p><b>3:30 PM W4-E.1</b> Making uncertainty analysis “fit for purpose” <i>Gray G</i> <i>GWU Milken Institute School of Public Health</i></p>	<p><b>W4-F.2</b> Urban park use, incidental exposure to ozone, and dimensions of livability and well-being; informing socioecological resilience in urban communities at risk <i>Winter PL, Padgett PE</i> <i>USDAFS Pacific Southwest Research Station</i></p>
<p><b>3:50 PM W4-A.2</b> Probabilistic maximum-value wind prediction for offshore environments <i>Staid A, Pinson P, Gnani SD</i> <i>JHU and DTU</i></p>	<p><b>3:50 PM W4-B.2</b> Respondent heterogeneity in stated preference matters: a latent class analysis <i>Hammitt JK, Herrera DA</i> <i>Toulouse School of Economics and LERNA</i></p>	<p><b>3:50 PM W4-C.2</b> The varieties of adaptive management and their ties to administrative law: experiences from the Department of the Interior <i>Runge MC</i> <i>USGS Patuxent Wildlife Research Center</i></p>	<p><b>3:50 PM W4-D.2</b> Risks and national security; The Chairman of the Joint Chiefs Risk Assessment and impacts of sequestration <i>Rouse JF</i> <i>Arete Associates Supporting the Joint Staff, JS</i></p>	<p><b>3:50 PM W4-E.2</b> Unpacking toxicity assessments to understand and improve confidence <i>Lewis RJ, Grant R, Santos S, Dourson M, Shirley S, Erraguntla N</i> <i>ExxonMobil Biomedical Sciences, Inc, Texas Commission on Environmental Quality, Focus Group and Rutgers, The State University of New Jersey, Toxicology Excellence for Risk Assessment</i></p>	<p><b>W4-F.3</b> Adaptation of US agricultural yields and production to drought and climate change <i>Woodard JD, Verteramo Chiu LJ, Miller AP</i> <i>Cornell University</i></p>
<p><b>4:10 PM W4-A.3</b> Estimation of human health risks associated with Cadmium Telluride (CdTe) thin-film Photovoltaic (PV) panels at end-of-life: landfill disposal and recycling <i>Cyrs WD, Avens HJ, Capshaw ZA, Kingsbury RA, Sahmel J, Tvermoes BE</i> <i>Cardno ChemRisk</i></p>	<p><b>4:10 PM W4-B.3</b> The relationship between the value of statistical life and the value of monetary time <i>Gopfu A</i> <i>Indiana University</i></p>	<p><b>4:30 PM W4-C.3</b> Evolution of Collaborative Networks for Adaptive Risk Management <i>Henry AD, Dietz T</i> <i>University of Arizona</i></p>	<p><b>4:10 PM W4-D.4</b> Overseas piracy <i>Trump J</i> <i>East Carolina University</i></p>	<p><b>4:10 PM W4-E.3</b> Presenting uncertainty in the context of biological monitoring and exposure information <i>Nance P, Farland W, Simon T, LaKind J</i> <i>Toxicology Excellence for Risk Assessment</i></p>	<p><b>W4-F.5</b> Incorporating the reality of climate change into risk assessment, remediation, and the long-term management of ecosystem services <i>Landis WG</i> <i>Western Washington University</i></p>
<p><b>4:30 PM W4-A.4</b> Development of a multi-attribute decision support framework for energy system planning <i>Doluweeravatta G, Arvai J*, Marceau DJ, Bergerson JA</i> <i>University of Calgary</i></p>	<p><b>4:30 PM W4-B.4</b> Preferences for life-expectancy gains: sooner or later? <i>Hammitt J, Tuncel T</i> <i>Toulouse School of Economics</i></p>	<p><b>4:30 PM W4-C.4</b> Adaptive management and governance challenges: new approaches <i>Kane SM, Abbott LC, Wentz JA</i> <i>Independent Consultant and University of New South Wales</i></p>	<p><b>4:30 PM W4-D.5</b> Improving transparency in hazard value development <i>Kirman CR, Meek ME, Gray GM</i> <i>Summit Toxicology, LLP</i></p>	<p><b>4:30 PM W4-E.4</b> Evaluating and expressing uncertainty in hazard characterization: a new WHO/IPCS guidance incorporating probabilistic approaches <i>Chiu WA</i> <i>US Environmental Protection Agency</i></p>	<p><b>W4-F.6</b> How climate change risk has been framed in China's policy discourse? <i>Fan S, Xu J, Xue L</i> <i>Tsinghua University, Peking University, Tsinghua University</i></p>
<p><b>4:40 PM W4-A.5</b> Valuing mortality risk reductions from traffic accidents and air pollution abatement in Chile. Can we get an ‘official’ value? <i>Rizzi L, Cifuentes LA, Cabrera C, Bronne M, Iglesias P</i> <i>Universidad Católica de Chile</i></p>	<p><b>4:50 PM W4-B.5</b> Valuing mortality risk reductions from traffic accidents and air pollution abatement in Chile. Can we get an ‘official’ value? <i>Rizzi L, Cifuentes LA, Cabrera C, Bronne M, Iglesias P</i> <i>Universidad Católica de Chile</i></p>	<p><b>4:50 PM W4-C.5</b> Improving transparency in hazard value development <i>Kirman CR, Meek ME, Gray GM</i> <i>Summit Toxicology, LLP</i></p>	<p><b>4:50 PM W4-D.6</b> Improving transparency in hazard value development <i>Kirman CR, Meek ME, Gray GM</i> <i>Summit Toxicology, LLP</i></p>	<p><b>4:50 PM W4-E.5</b> Improving transparency in hazard value development <i>Kirman CR, Meek ME, Gray GM</i> <i>Summit Toxicology, LLP</i></p>	<p><b>W4-F.7</b> Climate adaptation in Phoenix: gap analysis of cooling center accessibility <i>Uebelherr J</i> <i>Arizona State University School of Public Affairs, Center for Policy Informatics</i></p>



**W4-F.8** Evaluating economic benefits from abating black carbon and carbon dioxide

Zheng JM, Gilmore EA, Sarofim MC  
University of Maryland

**3:30 - 5:00 PM**

Plaza Ballroom E

**W4-G Symposium: Data Emerging Technologies, Part II**

Co-Chairs: Kenneth Olden, Abdel Kadry

**3:30 PM W4-G.1**

Tox21: implications for toxicity testing  
DeVito MJ

National Toxicology Program; National Institute of Environmental Health Sciences

**3:50 PM W4-G.2**

Potential new approaches to risk assessment

Cote I  
US Environmental Protection Agency

**4:10 PM W4-G.3**

Addressing human variability in human health risk assessments of environmental chemicals using emerging data streams

Zeise L, Bois FY, Chiu WA, Hattis D, Rusyn I, Guyton KZ

California Environmental Protection Agency  
Office of Environmental Health Hazard Assessment

**4:30 PM W4-G.4**

A Physiologically Based Pharmacokinetic (PBPK) Model for PFUnDA in Rats and Humans

Chimeddulam D, Wu KY\*  
National Taiwan University and Mongolian National University of Medical Science

**3:30 - 5:00 PM**

Plaza Ballroom F

**W4-H Symposium: Beyond Science and Decision Workshop Series**

Co-Chairs: Oliver Kroner, Kimberly Wise

**3:30 PM W4-H.2**

Comparative weight of evidence approach for limited toxicity data chemicals

Bredfeldt TG, Lee JS, Grant RL, Jones RE  
Texas Commission on Environmental Quality

**3:50 PM W4-H.3**

Practical guidance on the development of a non-cancer hazard range for effective risk assessment and risk management of contaminated sites: a case study with trichloroethylene and other chemicals.

Pfau EJ, Thompson R, Gadagbui BK, Gillay D, Lowe J, Dourson M\*

Hull & Associates, Inc., Alliance for Site Closures, TERA, Barnes & Thornburg, LLP, CH2M-Hill, TERA

**4:10 PM W4-H.4**

Interpretation of 24-hour sampling data: methods for developing 24-hour ambient air quality criteria based on toxicological and implementation considerations

Jugloff D, Schroeder J  
Ontario Ministry of the Environment

**3:30 - 5:10 PM**

Governors Square 14

**W4-I Symposium: Development and Application of Advanced Risk Assessment for Lung Cancer with Asbestos**

Chair: Jim Rasmuson

**3:30 PM W4-I.1**

Can tumor morphology and molecular pathology assist in identifying and quantifying risk parameters in lung cancer when there is more than one 'exposure'?

Case BW  
McGill University, INRS-Institut Armand-Frappier Research Centre

**3:50 PM W4-I.2**

Review of epidemiological studies of lung cancer risk from cigarette smoking: sorting out the important determinants

Rasmuson EJ  
Chemistry & Industrial Hygiene, Inc.

**4:10 PM W4-I.3**

Application of a multiplicative model for assessment of lung cancer risks associated with asbestos exposure and smoking: resolving relative risk confusion

Rasmuson J, Korchevskiy A\*  
Chemistry & Industrial Hygiene, Inc.

**4:30 PM W4-I.4**

Asbestos and smoking in human lung cancer: toxicological modes of action and threshold issues

Kaden DA, DeMott RP  
ENVIRON International Corp

**4:50 PM W4-I.5**

Evaluation of lung cancer risk associated with take-home asbestos exposure

Sahmel J  
Cardno ChemRisk

**3:30 - 5:00 PM**

Plaza Ballroom D

**W4-J Symposium: The Art of Thinking (Fast and Slow) about Emerging Risks**

Chair: Ortwinn Renn

**3:30 PM W4-J.1**

Foresight tools for responding to cascading effects in a crisis

Sellke P  
Dialogik Non-Profit Institute

**3:50 PM W4-J.2**

The distinction between risk and hazard: understanding and use in stakeholder communication

Scheer D, Benighaus C, Benighaus L, Renn O, Gold S, Röder B, Böhl GF  
University of Stuttgart

**4:10 PM W4-J.4**

Perception of water-related risks: a 'value expertise' as a participatory approach

Wachinger G, Renn O  
University of Stuttgart

**3:30 - 5:00 PM**

Governors Square 16

**W4-K Professionalization of Risk Communication and Training**

Chair: John Besley

**3:30 PM W4-K.1**

The survey of best practices in risk education: an overview

Andrijic E  
Rose-Hulman Institute of Technology

**3:50 PM W4-K.2**

Scientists' perceptions of public engagement and the need for theory development

Besley JC, Dudo AD  
Michigan State University, University of Texas

**4:10 PM W4-K.3**

The professionalization of risk and crisis communication: training, skills, and outcomes

Petrun EL, Madden SL, Liu BF, Izsak KW  
University of Maryland National Consortium for the Study of Terrorism and Responses to Terrorism (START)

**T-Shirt Giveaway  
Be a Die Hard Risk  
Analyst (DHRA)**

5:00-5:30 PM,  
Registration Area

Stay to the end of the sessions  
and receive a free T-shirt!

## Author Index

<b>A</b>	<b>B</b>	Berggren J .....	41	Brand K.....	24	Cacciatore MA .....	33
Abadin HG.....	45	Berglund EZ.....	21	Branquinho C.....	40	Cadini F.....	26
Abbott JE.....	29	Berman H.....	35	Bredfeldt TG.....	22, 47	Cains MG.....	29
Abbott LC.....	46	Berner CL.....	33	Breitenstein M.....	25	Calabrese EJ.....	26, 35, 41
Abedinisohi F.....	28	Bertelsen L.....	26	Breuninger K.....	26	Calci KR.....	30
Abelkop A.....	42	Bertenthal A.....	29	Brevett C.....	35	Calvin KV.....	20, 27
Abkowitz MD.....	42	Besley JC.....	29, 33, 37, 47	Brewer B.....	25	Camacho I.....	43
Adams PJ.....	32	Bessette DL.....	41	Breysse PN.....	23	Camp JL.....	29
Adgate JL.....	20	Beyer LA.....	43	Brigantic RT.....	42	Camp JS.....	42
Alderson DA.....	32	Bharati R.....	24	Brink S.....	36	Campbell AS.....	20
Alexander-Scott M.....	25	Bier VM.....	28, 29, 40, 44	Brinker K.....	42	Campbell BE.....	40
Alexeev TDK.....	29	Bills EK.....	36	Broder M.....	30	Canady R.....	23
Alfaro G.....	40	Binder AR.....	21	Bronfman NC.....	24, 29	Canesi L.....	30
Allen BC.....	35	Birchfield NB.....	35	Brookmire L.....	26	Cano NA.....	27
Altemose BA.....	25	Biswas D.....	28	Brooks BW.....	21	Cantor RA.....	20
Amlot R.....	25	Bjerga T.....	33	Brooks-Russell A.....	32	Cao H.....	28
Anderson SA.....	22, 24, 27, 28, 29, 36, 37	Bjork KE.....	32	Broomell SB.....	29, 35	Capen J.....	30
Andersson K.....	41	Black P.....	36	Brossard D.....	33	Capshaw ZA.....	36, 46
Andrijcic E.....	47	Black PB.....	40	Broughel J.....	35	Capstick SB.....	25
Anenberg SC.....	32	Blain R.....	29	Brouwers MC.....	33	Carladous S.....	27
Anitole K.....	25, 43	Blake-Hedges L.....	25	Brown L.....	42	Carlander D.....	23
Ankley G.....	25	Blazquez C.....	40	Browne M.....	46	Carlyle WM.....	32
Annable G.....	33	Boehnert J.....	23	Bruce N.....	23	Carosino CM.....	23
Antczak P.....	22	Boelter FB.....	25	Brumback B.....	27	Carrington C.....	40
Aoyagi M.....	35	Böhm G.....	23	Brunelli A.....	30	Carter LJ.....	23
Apt J.....	22	Bois FY.....	47	Brynczka C.....	26	Caruzzo A.....	36
Aravena C.....	24	Boize M.....	27	Buchanan RL.....	20, 34	Case BW.....	47
Arcella D.....	33, 35	Böl GF.....	47	Budinsky RA.....	25	Casman E.....	29, 35
Arimoto CW.....	26, 42	Boomus C.....	30	Buenaventura E.....	30	Cawley M.....	27, 29
Armstrong T.....	23, 41	Borchers N.....	36	Bui A.....	24	Cerretto KM.....	36
Arnold SF.....	43	Borgelt L.....	32	Bulchis A.....	24	Cervera MS.....	34
Arvai JL.....	41, 46	Borsuk ME.....	44	Bunge AL.....	36	Cha EJ.....	35
Asher DM.....	24	Bostrom A.....	16, 17, 23, 38, 45	Bunn WB.....	23	Chakreeyarat VS.....	30
Ashley.....	34, 42	Botelho M.....	40	Buonanduci MS.....	29	Chang C.....	26
Atapattu A.....	31	Botsis TB.....	40	Burch D.....	29	Chang ET.....	27
Aubert N.....	27	Bouder F.....	16, 17, 22, 38, 45	Burdett CL.....	32	Chang HF.....	31
Augusto S.....	40	Boudet HS.....	21	Burge C.....	45	Chang N.....	27
Auld H.....	35	Bourgeron PB.....	20	Burgoon L.....	22, 29	Chang YS.....	25
Aungst J.....	35	Bourgeron PS.....	20	Burkhardt W.....	30	Charles AL.....	30
Austin K.....	43	Bouwknegt M.....	22, 34	Burns WJ.....	20	Charles MKS.....	27
Aven T.....	22, 33, 35	Bowles D.....	32	Butler C.....	21	Charnley G.....	21
Avens HJ.....	46	Bowman D.....	44	Butte G.....	45	Charton-Bissetta J.....	28
Axelrad DA.....	35	Boxall ABA.....	23	<b>C</b>		Chatterjee S.....	42
Aylward L.....	25	Boyd AD.....	35	Cabanes PA.....	27, 28	Chaudhry Q.....	23
Ayre KK.....	36	Brachman ML.....	30	Cabrera C.....	36, 46	Chavez M.....	21
		Bradley IJN.....	30			Cheesebrough AJ.....	34, 44
		Bergerson JA.....	46				

## Author Index

Chen L.....	30	Crowe BM.....	40	Dezert J.....	44	Elvira V.....	40	Fonger GC.....	30, 31
Chen PC.....	26	Cubberley R.....	25	Dhadra S.....	25	Emmert A.....	22	Fontecha JE.....	27
Chen Y.....	37, 40, 42	Cui J.....	40	Diamond S.....	23	Empereur-Bissonnet P.....	26	Foos B.....	30
Chiang SY.....	28	Cuite CL.....	37	Dieckmann NF.....	21, 28	Englehardt JD.....	26	Foran C.....	46
Chien S.....	42	Cullen AC.....	31	Dieleman J.....	24	Eosco GM.....	29, 30, 43	Ford B.....	22, 42
Chikaraishi M.....	27	Cummings CL.....	44	Diener A.....	24	Erraguntla N.....	46	Forsell T.....	36
Chimeddulam D.....	47	Cunniff TM.....	22	Dietz T.....	34, 46	Esposito PA.....	33	Forshee RF.....	40
Chiu CH.....	29	Cunningham FH.....	26	Dilling L.....	41	Esswein E.....	20, 25	Forsythe KW.....	30
Chiu WA.....	35, 46, 47	Curt C.....	27, 44	Dillon D.....	26	Evans AM.....	37	Foss Hansen S.....	23
Chopra SS.....	32, 42	Curtis A.....	40	Dillon-Merrill RL.....	24	Evans C.....	35	Foster SD.....	43
Christian WV.....	29	Cuvilliez AL.....	27	DiNovi MJ.....	33, 35	Evensen D.....	21, 45	Fowle JR III.....	22
Chuang YC.....	27	Cwik B.....	45	Dister CJ.....	22	Evers EG.....	22, 34	Fox MA.....	41
Ciacci C.....	30	Cyrs WD.....	46	Dittborn R.....	36	Ezell BC.....	40	Fox-Lent C.....	30, 44
Ciarlo M.....	21			Dixon GN.....	37			Francis R.....	20, 44
Cifuentes LA.....	24, 27, 29, 36, 46	<b>D</b>		Doe JB.....	33	<b>F</b>		Frank D.....	46
Cipriano R.....	30	Daigle KJ.....	33	Doerge D.....	33	Fabbri C.....	30	Frantz R.....	28
Cisternas PC.....	29	Damjanovic I.....	33	Dolislager FG.....	26	Falciani F.....	22	Franz C.....	36
Clarens AF.....	36	Daniau C.....	26	Doluweerawatta G.....	46	Fanaselle W.....	42	Frewer LJ.....	25
Clarke CE.....	21	Danyluk MD.....	20	Donoso F.....	27	Fan KC.....	26	Friedman SM.....	43
Cleland J.....	29	Dassah E.....	41	Doody PC.....	30	Fan S.....	46	Friedrich LM.....	20
Clippinger AJ.....	43	Davidson A.....	43	Dorantes G.....	28	Fann N.....	43	Frye FEH.....	24
Cockrell G.....	29	Davidson RA.....	27, 36	Dotson GS.....	37	Farland W.....	46	Fuhry M.....	43
Cogger N.....	40	Davis A.....	26	Doudrick K.....	23	Farnsworth ML.....	32	Fujiwara A.....	27
Coghiano VJ.....	35, 41	Davis JA.....	29	Dourson ML.....	26, 30, 37, 46, 47	Farouk B.....	41	Furgal C.....	21, 35
Cokely ET.....	23, 28	Daziano R.....	30	Driedger M.....	21	Farrar D.....	35		
Coleman ME.....	20	Dearry A.....	45	Driedger SM.....	33, 41	Fazil AM.....	35	<b>G</b>	
Collier ZA.....	20, 34, 37	DeBord DG.....	30	Droguett EL.....	35	Feng T.....	29	Gabert R.....	24
Collins J.....	44	DeCenso B.....	24	Drolet D.....	43	Ferracini T.....	36	Gadagbui B.....	37, 47
Colosi LM.....	36	DeFelice N.....	30	Dube EM.....	26	Fiebelkorn SA.....	26	Galizia A.....	30
Comer N.....	35	De La Maza C.....	24, 27	Dubey JP.....	20	Finkel AM.....	23, 44	Galizzi M.....	25
Connelly EB.....	36	DeLeo P.....	21	Dubois JJ.....	26	Finley BL.....	29	Gallagher K.....	41
Connor E.....	42	Delgado M.....	20	Duckett DD.....	41	Firle B.....	24	Gallagher S.....	43
Connor KH.....	27	Deline MB.....	29	Dudkiewicz A.....	23	Fischbach JR.....	40, 44	Gallo G.....	30
Cope R.....	26	DelleFave F.....	42	Dudo AD.....	47	Fischer ARH.....	25	Galloway LD.....	26
Corin S.....	31	De Marcellis-Warin N.....	27, 30, 41			Fischer M.....	27	Gamble HR.....	20
Corley EA.....	33	DeMott RP.....	47	<b>E</b>		Fisch G.....	36	Ganin A.....	20
Corner A.....	25	Demski CC.....	21	Ebel E.....	22, 40	Fischhoff B.....	25, 29	Garbett A.....	41
Corradini M.....	29	Demuth JL.....	23, 41	Edwards R.....	30	Fisher J.....	33, 35	Garcia-Retamero R.....	23, 28
Corrales MC.....	42	Deng Q.....	22	Edwards S.....	25	Fitzgerald LF.....	24	Garza SJ.....	32
Costard S.....	20	Denkenberger DC.....	32	Eeckhoudt LR.....	36	Fitzpatrick JW.....	41, 43	Gavrelis N.....	26
Cote L.....	47	Dennis SB.....	32, 37, 40, 42	Egolf BP.....	43	Fitzpatrick SC.....	22, 42	Gellatly N.....	25
Cowden J.....	25, 35, 37	Denslow ND.....	27	Ehlen WA.....	44	Flage R.....	22, 33	Gernand JM.....	28
Cox A.....	20, 23, 26, 33, 34, 35, 36, 43	Detenber BH.....	28	Eisenreich K.....	43	Flewelling SA.....	22, 24	Gernes RA.....	30
Cox JA.....	26, 33, 35, 43	Deveau M.....	21, 28	Eisinger F.....	29, 33	Flood M.....	43	Gerst MD.....	44
Cox T.....	23	DeVito MJ.....	47	Elliott ED.....	22	Florig HK.....	29, 35	Ghosal S.....	23
Crainich D.....	36	Devlin RB.....	45	El-Tawil O.....	26	Flowers L.....	35	Gift JS.....	35

## Author Index

Gillay D..... 47	Gutierrez VV..... 24	Hernández-Coronado P..... 40	<b>I</b>	Kanter D..... 34
Gilmore EA..... 20, 27, 47	Gutsell S..... 22	Herovic E..... 35	Idehen EC..... 34	Kao HC..... 26
Gledhill J..... 16, 38	Guyton KZ..... 47	Herraiz E..... 40	Iglesias P..... 46	Kaptan G..... 25
Goad P..... 23	Guzman KD..... 34	Herrera DA..... 46	Ignacio J..... 31	Kashuba RO..... 36
Goble R..... 33, 34	<b>H</b>	Herrera LC..... 36	Igusa T..... 44	Kaweeteerawat C..... 26
Goblick G..... 30	Haas CN..... 37, 41	Herring CE..... 36	Ilci F..... 28	KegelMeyer P..... 20
Godwin H..... 26, 43	Haavik TK..... 35	Hertzberg RC..... 23, 25	Iwabuchi M..... 35	Keisler J..... 28
Godwin S..... 35	Haddock M..... 30	Hesterberg TH..... 23	Iwai T..... 26	Keller C..... 43
Goeden H..... 26	Hafidi M..... 30	Hewett P..... 41	Izsak KW..... 47	Keller K..... 45
Gold S..... 47	Haidari I..... 30	Hill D..... 20	<b>J</b>	Keller LR..... 29
Gómez CM..... 40	Hakkinen PJ..... 30, 31	Himoto K..... 27	Jacquet JB..... 21	Kennedy S..... 25
Gomez J..... 40	Halbert BE..... 40	Hines E..... 26	Jardine C..... 21	Kenyon E..... 30
Gonnerman C..... 45	Hall D..... 43	Hinkins S..... 22	Jaros P..... 40	Kermarec F..... 26
Good DH..... 42, 46	Hallman WK..... 35, 37	Ho S..... 28	Jayock MA..... 23	Kerper LE..... 37
Gooding RE..... 26, 33, 35, 43	Hamilton MC..... 30	Ho WC..... 26	Jessup A..... 20, 34, 42	Kessel CM..... 36
Goodman JE..... 28, 30, 37	Hammitt JK..... 16, 17, 36, 38, 40, 46	Hodges G..... 22	Jimenez RB..... 29, 40	Khanna V..... 32, 42
Gooptu A..... 46	Han PKJ..... 21, 28	Hodgin CR..... 31	Jina AS..... 20	Kharchi F..... 30
Gordon D..... 34	Handschy M..... 22	Hodgin HM..... 31	Jinot J..... 35	Kidd G..... 45
Gore MG..... 29	Hanlon CJ..... 36	Hodson S..... 23	Joca L..... 25	Kiefer M..... 25
Gore ML..... 22	Hanson B..... 28	Hoelzer K..... 32, 37	John RS..... 20, 24, 40	Kienzler A..... 22
Gower S..... 23	Hanss D..... 23	Hogan KA..... 35	Johns DO..... 45	Kim HK..... 28
Graham JD..... 24, 42, 46	Harper SL..... 37	Holden PA..... 43	Johnson BB..... 21, 28	Kim S..... 28, 35
Grange F..... 33	Harrill J..... 23	Holman E..... 20	Johnson DR..... 40	King B..... 25
Grant RL..... 46, 47	Harris M..... 24	Holman ES..... 25	Johnson R..... 30, 45	Kingsbury RA..... 46
Grasselli E..... 30	Harris S..... 40	Holt C..... 29	Johnson S..... 29	Kirby L..... 36
Gray DL..... 27	Hart PS..... 21	Holtzman JH..... 30	Johnson T..... 30	Kirk M..... 31
Gray GM..... 20, 46	Hartley K..... 24	Honeycutt M..... 30	Johnston H..... 43	Kirkaldy J..... 40
Greco SL..... 24	Hartman P..... 27	Hoover MD..... 30, 37	Johnston J..... 30	Kirman B..... 41
Green-Barnes J..... 20, 27	Hartnett E..... 37	Hoque S..... 41	Jones E..... 25	Kirman CR..... 21, 46
Greenberg GI..... 27	Haskell JM..... 24, 42	Horne C..... 21	Jones J..... 20	Kirrane E..... 26
Greenberg MR..... 43	Hattis D..... 26, 47	Hosono H..... 35	Jones R..... 25, 37	Kishimoto A..... 29
Greene CW..... 27	Hatwell K..... 35	Hosseinali Mirza V..... 41	Jones RE..... 47	Kissel JC..... 36
Greggs B..... 21	Hausken K..... 28	Howard PM..... 26, 42	Jordan S..... 30	Kito Y..... 28, 29
Gregori L..... 24	Havelaar AH..... 22	Howe PD..... 43	Joseph J..... 24	Knapen D..... 22
Gregory R..... 21, 28, 46	Hawkins BE..... 26, 33, 35, 43	Hristozov D..... 30	Jovanovic AS..... 24	Knol AB..... 34
Greidinger SJ..... 44	Haws LC..... 24	Hsiang SM..... 20	Jugloff D..... 47	Koerner JF..... 31
Grieger K..... 28	Hayden MH..... 23	Hsu E..... 36	Julias C..... 27	Koffman KA..... 29
Groenendaal H..... 20	Hays SM..... 21	Huang TL..... 24	<b>K</b>	Kopp RE..... 20
Groves DG..... 40	Heiger-Bernays W..... 26	Huang Y..... 24, 37	Kacew S..... 26, 34, 36	Korchevskiy A..... 47
Gu Y..... 35	Hennig R..... 20, 27	Hubbell B..... 43	Kaden DA..... 47	Kosanoglu F..... 40
Guerrette Z..... 31	Henning C..... 29	Huijts NMA..... 30	Kadlec MC..... 27	Kosnett M..... 41
Guikema SD..... 33, 35, 44, 46	Henry AD..... 34, 46	Hunt DR..... 24	Kajitani Y..... 27	Kott A..... 20
Guo M..... 20	Henry TR..... 43	<b>I</b>	Kane AS..... 27	Kovacs D..... 45
Gurian PL..... 45	Henshel DS..... 29		Kane SM..... 46	Kowalek DK..... 29
Gustafson L..... 30	Heo J..... 32			Kraus B..... 32
Gutfraind A..... 20				Krawiec K..... 24

## Author Index

Kreider ML.....	29	Lee YJ.....	27	Lute ML.....	22	McLoughlin M.....	33	Musso MP.....	29, 35
Kreuzmair C.....	43	Lefkir A.....	30	Lynch HN.....	27, 28, 30, 37	McMinn C.....	29	Myriam M.....	36
Krewski D.....	28	LeHuray AP.....	26	Lynch I.....	23	Mead R.....	43	<b>N</b>	
Krieger K.....	25	Lemeux A.....	22	Lynch ML.....	26	Meek ME.....	21, 25, 46	Nachman K.....	33, 35
Krutilla KM.....	36, 42, 46	Lemoine D.....	20	<b>M</b>		Meer S.....	20	Naito W.....	27
Kubatko AL.....	35	Lempert R.....	45	MacDonald S.....	40	Mendelsohn RO.....	40	Nakagawa Y.....	35
Kuck J.....	26, 42	Lemyre L.....	28	MacDonald Gibson J.....	30	Mendez W.....	25	Nakoski JA.....	34
Kudo H.....	28, 29	Lentz TJ.....	37	MacDonell M.....	25	Menzie CA.....	34, 36, 46	Nance PM.....	28, 29, 46
Kuensch HR.....	44	Lepofsky M.....	26	MacGillivray BH.....	20	Meredith C.....	26	Narayanan A.....	44
Kuen-Yuh W.....	27, 29	Lewandowski T.....	21	MacKay C.....	25	Meyer A.....	32	Nardinelli.....	34, 36
Kuiken T.....	44	Lewis AS.....	27, 43	MacKenzie CA.....	32	Micallef SA.....	28	Narrood C.....	34
Kumagai Y.....	35	Lewis RJ.....	41, 45, 46	Madden MK.....	26	Middleton JK.....	30	Nateghi R.....	44
Kurfirst LS.....	34	Li C.....	40	Madden SL.....	47	Mikami Y.....	26, 40	Nathaniel J.....	23
Kuttischreuter M.....	33	Li L.....	42	Madl AK.....	23	Miller AP.....	46	Neal-Kluever AP.....	35
Kuzma J.....	44	Li SY.....	42	Maeda Y.....	44	Miller RS.....	32	Nedza JA.....	30
Kwegyir-Afful EK.....	26	Liem A.....	35	Magee BH.....	27, 40	Miller S.....	45	Nelson ML.....	26
<b>L</b>		Lin CC.....	26	Maier A.....	23, 28, 37	Miller TA.....	28	Newberry JL.....	33
LaBudde R.....	34	Lin MH.....	26	Makino R.....	28	Miller TH.....	34	Nguyen KD.....	20, 24
Laessig S.....	43	Lin RS.....	26	Mandela A.....	29	Mills K.....	37	Nguyen T.....	22
Laird S.....	40	Lin YC.....	24	Mangalam S.....	24	Ming-Yen C.....	29	Nicol AM.....	33
LaKind J.....	46	Lindell MK.....	41	Marano KM.....	29	Mishra A.....	28, 34	Niemeier RT.....	37
Lam J.....	35, 41	Linehan C.....	41	Marceau DJ.....	46	Mlakar J.....	30	Nightingale N.....	24
Lambertini E.....	20, 28, 34	Linkov I.....	20, 25, 26, 28, 30, 34, 37, 44, 46	Marchant G.....	23, 24	Mohaghegh Z.....	27, 41	Niyama Y.....	28, 29
Lambert JH.....	36	Lipscomb JC.....	30	Marcomini A.....	30	Mohan S.....	20	Nisbet RM.....	43
Lambert S.....	23	Little K.....	32	Marlatt HL.....	23	Mokhtari A.....	32	Njan A.....	26
Lammerding AM.....	35	Liu BF.....	47	Marr WA.....	22	Montalto FA.....	45	Norman JE.....	23
Landis WG.....	36, 46	Liu CR.....	24	Martin L.....	25	Montoya M.....	20	Novick R.....	26
Lange SS.....	30	Liu J.....	26	Marván ML.....	28	Moolgavkar SH.....	27	<b>O</b>	
Lassiter MG.....	26	Liu R.....	26	Massaro EM.....	20	Mootian GK.....	20	Öberg T.....	34
Lathrop JF.....	40	Liu S.....	29	Mathuru A.....	23	Morere JF.....	33	O'Brien MP.....	31
LaTourrette T.....	44	Liu X.....	42	Matsukura K.....	28	Morgan G.....	30	O'Connor RE.....	16, 17, 23, 38
Lau EC.....	27	Loa K.....	44, 45	Mauer B.....	29	Morgan W.....	29	Ogden MW.....	29
Laurence R.....	36	Lofstedt R.....	556, 22, 24, 38, 45	Maxwell G.....	25	Morin X.....	37	Ogungbesan A.....	35
Lavado R.....	24	Logomasini AM.....	34	Mayer LA.....	45	Morss RE.....	23, 41	Ohanian E.....	41
Lawson S.....	41	López-Vázquez E.....	28, 29	Maynard A.....	44	Mortier L.....	33	Oka T.....	27
Lazareva A.....	23	Lorber M.....	25	Mayorga M.....	21, 28	Moser V.....	30	Okocha B.....	33
Lazo JK.....	23, 41	Losada Maestre R.....	29	Mazzuchi T.....	20	Mothersill C.....	26	Olden K.....	45
Lazrus H.....	23, 40	Losapio C.....	30	McBride M.....	22	Motoyoshi T.....	44	Oliver LD.....	29
Lebbe C.....	33	Lowe J.....	37, 47	McCallum L.....	30	Moya J.....	27	Olivola CY.....	40
Lee CH.....	24	Lowit AB.....	25, 30	McClellan R.....	34, 36	Mulamootil L.....	24	Ollison W.....	30
Lee GW.....	27	Lowney YW.....	36	McClure M.....	32	Mulder KJ.....	41	Ollson C.....	30
Lee HS.....	27	Lu H.....	28	McComas K.....	16, 17, 37, 38, 45	Muldoon-Jacobs K.....	35	Olsen M.....	25
Lee J.....	25, 37, 47	Luccioli S.....	26	McCormick B.....	42	Mumtaz MM.....	40	Ono K.....	28
Lee PS.....	34	Luke N.....	27	McDaniel MF.....	30	Muñoz F.....	27	Oppenheimer M.....	20
Lee R.....	36, 40	Lundberg RP.....	30	McGee RD.....	28	Murphy DL.....	41		
						Murphy PM.....	29		

## Author Index

O'Reilly MV.....	25	Perona R.....	36	Reese L.....	29	Ruby MV.....	36	Schneider R.....	24
Oris JT.....	26	Perron MM.....	25	Reichert P.....	44	Rudd M.....	23	Schoeny R.....	30, 41, 43
Oryang D.....	32	Persky JD.....	43	Reid D.....	24	Rule A.....	23	Schroeder J.....	47
O'Shea S.....	25	Peterson M.....	21	Reilly AC.....	44	Runge MC.....	46	Schroeter RS.....	28
Oshita T.....	21, 29	Petrun EL.....	47	Reiss R.....	21	Rusyn I.....	45, 47	Schuldt J.....	45
Oster MR.....	42	Pfau E.....	37, 47	Reitman F.....	26	Ruthman T.....	35	Schuldt JP.....	28, 30, 31, 44
Overton AJ.....	27	Phillips H.....	40	Renn O.....	24, 33, 37, 47	Ryan A.....	33	Schult JP.....	21
Overton R.....	29	Phillips L.....	27	Rezaee S.....	28	Ryan PH.....	30	Schwarber A.....	20, 27
Owens EO.....	26	Pickles J.....	25	Rheinberger CM.....	40	Ryser E.....	30	Schweizer PJ.....	34
Oxenidine S.....	43	Pidgeon NF.....	21, 25, 44	Rhomberg LR.....	30	Ryti RT.....	27	Scott CS.....	35
Oye K.....	44	Piña G.....	36, 46	Rice GE.....	23, 25, 30, 37			Scott JS.....	40
<b>P</b>		Pinho P.....	40	Richard D.....	44	<b>S</b>		Scott R.....	31
Paap SM.....	34	Pinkerton KE.....	23	Richmond-Bryant J.....	26	Saat MR.....	42	Scott S.....	31
Paddrik M.....	43	Pinsent C.....	28	Richter BP.....	30	Saber-Freedman N.....	44	Scozzafava M.....	43
Padgett PE.....	46	Pinson P.....	46	Rickard LN.....	25, 30, 43	Sachana M.....	25	Scribner K.....	23
Pagsuyoin SAT.....	36	Piotrowski A.....	27	Ricoux C.....	26	Sack C.....	43	Seena AS.....	30
PaiMazumder D.....	23	Pirasteh F.....	26	Riggs P.....	32	Sacks JD.....	25, 45	Segner H.....	25
Pakiam J.....	31	Pivot X.....	33	Rinderknecht SL.....	44	Sahlin U.....	22	Sekizaki T.....	35
Palma-Oliveira JM.....	36, 40	Pizaro J.....	29	Rios Insua D.....	42	Sahmel J.....	36, 46, 47	Sellke P.....	47
Palmquist KR.....	36	Pizzurro DM.....	28	Rios J.....	42	Saiag P.....	33	Sellnow TL.....	33, 35
Pan ZC.....	26	Plourde K.....	28	Rising J.....	20	Saib O.....	25	Semenzin E.....	30
Pang H.....	28	Plourde KJ.....	37	Rivera-Núñez ZZ.....	21	Salvio C.....	26	Senger-Mersich A.....	35
Paoli G.....	37, 40	Plummer LE.....	23	Rivers JD.....	34	Sams R.....	25, 37	Seo K.....	44
Park R.....	45	Pollock MC.....	27	Rizzi L.....	24, 46	Sanaa M.....	22, 40	Sertkaya A.....	20, 36, 42
Parker AL.....	28	Pouillot R.....	24, 30, 32, 37, 40, 42	Robert C.....	33	Sanei M.....	26	Severtson DJ.....	43
Parkhill KP.....	21	Powell M.....	24, 34	Roberts C.....	30	Sanger W.....	30	Shackelford M.....	35
Parvez S.....	21	Powers CM.....	25	Roberts CB.....	27	Santos A.....	40	Shamoun DY.....	35, 41
Patel MM.....	26	Pradhan AK.....	20, 28, 34	Roberts SM.....	27	Santos JR.....	36	Shao K.....	35
Patlewicz G.....	25	Prueitt RL.....	28, 30	Robinson LA.....	16, 17, 34, 36, 38	Santos S.....	46	Sharma M.....	24
Patterson J.....	44	Publicker S.....	30	Röder B.....	47	Saptoka A.....	20, 27	Sharon C.....	40
Paustenbach DJ.....	23	Puett R.....	20, 27	Roeser S.....	30	Sarathchandra D.....	26	Sheehan T.....	32
Pearce EN.....	21	<b>R</b>		Rogers MB.....	25, 35	Sarkani S.....	20	Sheffield D.....	25
Pearce JM.....	32, 35	Raffaele K.....	43	Roh C.....	29	Sarofim M.....	32, 47	Shen SF.....	42
Pearson P.....	25	Rahman B.....	30	Roh S.....	28, 44, 45	Sax SN.....	28	Sherry J.....	40
Peckham TK.....	36	Rajaonson A.....	22	Ronga S.....	27	Scawthorn C.....	27	Shi-Jung C.....	27
Peignier I.....	27	Rak A.....	29, 32	Rooney A.....	37	Schaffer D.....	37	Shin DC.....	27
Pei-Ting C.....	27	Ram B.....	46	R'os Insua D.....	40	Schaffner DW.....	20, 30	Shin J.....	40
Pekar Z.....	41, 43	Ramachandran G.....	43	Rose AZ.....	44	Scharks T.....	23	Shiotani T.....	35
Pelot R.....	28	Randolph MA.....	26, 42	Rose SR.....	22	Scheel OS.....	28	Shirai JH.....	36
Pence J.....	27, 41	Rasmuson EJ.....	47	Rosen JS.....	44	Scheele R.....	29	Shirley S.....	46
Pendington R.....	25	Rasmuson J.....	43, 47	Rosoff HR.....	20, 24	Scheer D.....	47	Shope R.....	26
Pepple MA.....	44	Rasmussen DJ.....	20	Ross JD.....	32	Scherer CW.....	29, 30, 43	Shortridge JE.....	35
Pérez-Blanco CD.....	40	Ratsimbazafy JH.....	22	Ross P.....	29	Scheufele DA.....	33	Shubat PJ.....	27
Perkins CJ.....	42	Ravikumar A.....	41	Roth R.....	43	Schmidt K.....	34	Siegel D.....	31
Perkins EJ.....	22	Read LK.....	44	Rouse JF.....	46	Schmitt K.....	44	Siegrist M.....	37, 43
				Rowe AJ.....	31	Schneider EA.....	29	Simis MJ.....	41

## Author Index

Simmons L.....27	Streetman SS.....34	Torres CW.....25	Wagner V.....26	Willis HH ..... 30, 44
Simon-Cornu M ..... 32	Stubbs C.....27	Tosoni E.....26	Walderhaug MO .....22	Wilson LH .....27
Simon T ..... 25, 46	Stuchal LD.....27	Towler EL.....23	Waldhoff ST.....32	Wilson PH..... 26, 43
Siu NO.....34	Subramanian V .....30	Tran N.....35	Walker C..... 29, 42	Wilson RS.....25
Skach KA .....23	Suchomel A .....26	Trumbo CW.....23, 28, 35	Walkner TJ .....29	Winkel DJ..... 26, 33
Skinner L.....26	Sullivan K.....26	Trump BT ..... 28, 44	Wallet F.....28	Winter PL.....46
Slovic P .....21, 28, 46	Summerhayes RJ .....30	Trump J .....46	Wang GS .....32	Wong H ..... 20, 42
Small MJ .....20, 22, 36	Sundararajan M.....21	Tsuchida S.....35	Wang H.....30	Wong-Parodi G..... 25, 29
Smerilli A .....30	Sung FC.....26	Tsujikawa N.....35	Wang M.....28	Wood MD.....34
Smith BA .....35	Sunn T-J.....26	Tsunemi K .....28	Wang Q.....27	Woodall GM.....45
Smith CW.....25	Sütterlin B.....37	Tuana N.....45	Wang W.....27	Woodard JD .....46
Smith M.....30	Sutton JN .....33	Tucker K.....21	Wang Y ..... 35, 42	Woodhull D.....33
Snawder JE .....25	Swain KA .....28	Tucker KB.....26	Wardman J .....34, 36, 41	Woodruff TJ .....35
Snekkenes E .....29	Swartout JC.....23	Tunbridge S .....33	Ward RM.....29	Woods K .....31
Song H.....31	Swauger JE.....29	Tuncel T.....46	Wargo RK .....22	Worral C .....45
Song JS.....36	Sy MM.....32	Turley A.....25, 27, 29	Warin T ..... 30, 41	Wright JM.....21, 30, 31, 37
Souweine K.....30	Szabo .....34	Turvey CG.....29	Warren D.....44	Wu KY.....27, 28, 47
Spann TM.....20	<b>T</b>	Tvermoes BE.....46	Watanabe H .....25	Wu P.....29
Sparling E.....35	Tabony JA .....30	Tvermoes BT .....26	Watson HN.....27	Wu T.....29
Sparrevik M .....26	Tacnet JM..... 27, 44	Tyler C.....20	Way ..... 16, 17, 38, 45	Wu TN.....26
Spence A.....21	Tago D.....23	Tymchak MP .....22	Weidling R.....21	Wu TT.....26
Spence E.....25	Tallapragada M.....29	<b>U</b>	Weir MH..... 24, 26	Wurzel K .....28
Sposato RG.....44	Tambe M..... 22, 42	Uebelherr J.....46	Welburn J.....28	Wyss GD.....34
Spurgeon D .....23	Tan RR.....36	<b>V</b>	Wells EM.....35	<b>X</b>
Sridharan S .....24	Tano MT .....40	van Bommel DM.....45	Wentz JA.....46	Xenos MA.....33
Srinivasan J.....35	Tao G .....30	Van der Sluijs JP ..... 22, 34	Wernke MJ .....28	Xu J ..... 29, 35, 46
Stahl C.....25	Tauxe J .....36	Van Doren JM ..... 30, 42	Wheeler JS.....45	Xu LX.....40
Staid A.....46	Tavakkoli S .....32	van Ruijven BJ.....20	Whelton AJ.....44	Xu Y .....29
Stark R.....25	Taylor T .....26	Vareman N.....22	Whitaker B.....22	Xue L.....46
Stedje G.....24	Tellenbach M.....23	Vastfjall D.....46	Whitmarsh L .....44	<b>Y</b>
Stedman RC.....21	Tempesti T.....25	Vaughan PH .....27	Whittaker IC.....26	Yamaguchi H.....26
Steen A.....20	Templin H.....27	Verlinde J .....36	Whittaker M.....31	Yang G .....27
Steinmaus C.....21	Tessman G.....45	Verteramo Chiu LJ..... 29, 46	Whittaker Sofge C.....45	Yang H ..... 24, 37
Stelzner C .....44	Teunis PFM .....34	Viguier J.....33	Wicki B.....28	Yang JY .....27
Stempfelet M.....26	Teuschler LK ..... 23, 37	Villeneuve D .....25	Wickline MC.....33	Yang YR .....27
Stenzel M.....43	Thomas T..... 37, 42	Vinikoor-Imler L .....26	Wiener JB.....24	Yang ZJ .....25
Stephens ML .....37	Thometz E.....30	Vogel CM .....29	Wikoff DS .....24	Yaroschak PJ.....32
Stern E.....29	Thompson R..... 37, 47	Vogel RM .....44	Wilbur D .....25	Yeager RP.....45
Stern PC.....20	Thorne S.....45	von Stackelberg ..... 556, 34, 44	Wilder G .....44	Yeh H .....27
Stevens C.....29	Tiede K.....23	von Winterfeldt D.....24	Wilhelmi OW ..... 23, 42	Yeo SK.....33
Stewart DJ.....26	Tobias M.....24	Voyadgis DE .....30	Wilkins M.....29	Yin HY.....40
Stiefel D.....32	Toccalino PL.....23	<b>W</b>	Willett CE.....22	Yong AG .....28
Stinson JS .....36	Tokai A.....26	Wachinger G.....47	Williams ES.....21	Young GS.....36
Stone V .....43	Toman E.....40	Wada Y.....28	Williams MS.....40	Young I .....35
Strabala TJ.....31	Tonn B.....32		Williams R.....35	
Strauss B.....29			Willis AM .....26	

Yu HL ..... 24, 29  
Yu KDS ..... 36  
Yuan S ..... 29, 33  
Yurk J ..... 25  
Yuyama A ..... 27

**Z**

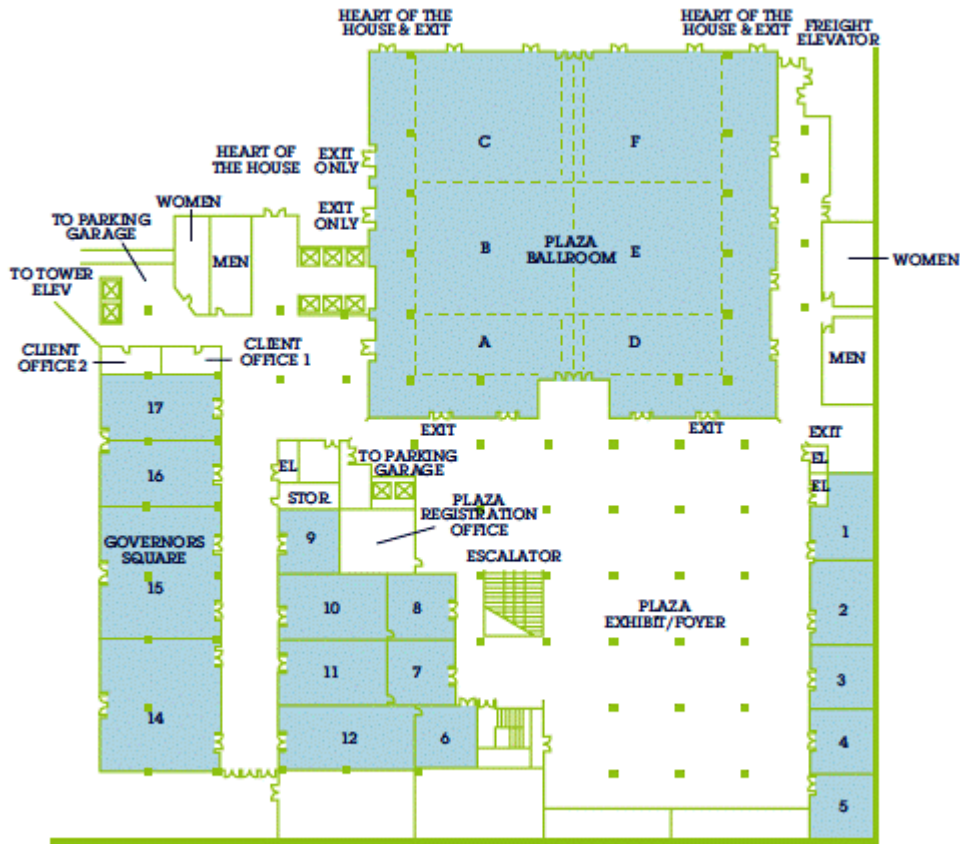
Zagmutt FJ ..... 20  
Zeise L ..... 47  
Zemba SG ..... 36  
Zhang C ..... 42  
Zhang H ..... 28  
Zhang JZ ..... 40  
Zhang K ..... 26, 40  
Zhang Y ..... 36, 46  
Zhang Z ..... 27  
Zheng JM ..... 47  
Zhou Y ..... 29, 35, 40  
Zhu J ..... 26  
Zhu L ..... 44  
Zhuang JZ ..... 40, 42  
Zimmerman R ..... 21  
Zio E ..... 26, 33  
Zobel CW ..... 32  
Zu K ..... 28, 37, 43  
Zwickle A ..... 25



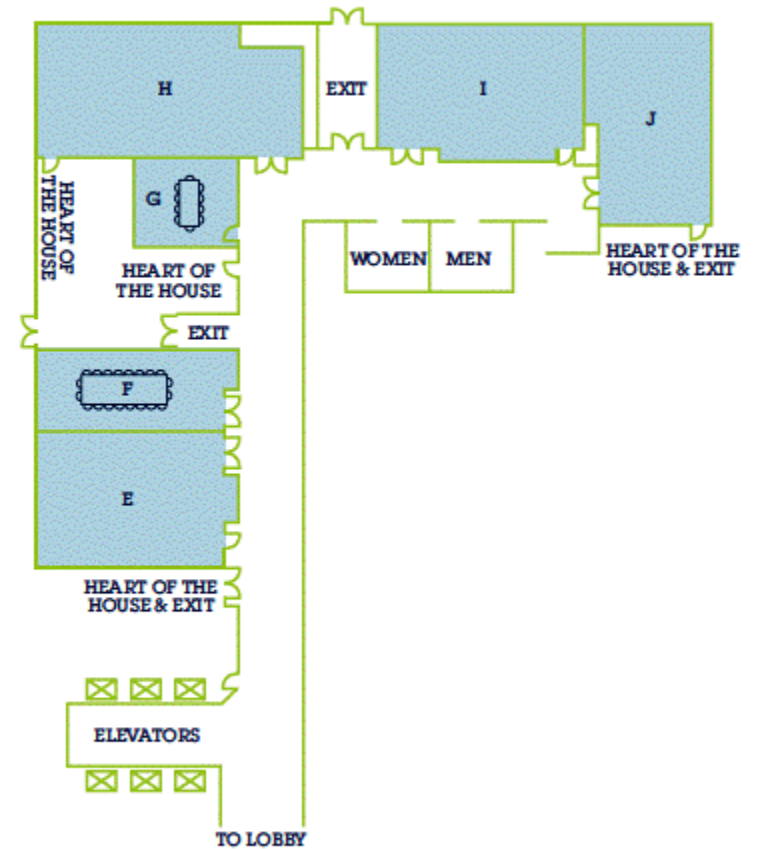




# Floorplans



Sheraton Denver - Plaza Concourse Level



Sheraton Denver - Plaza Lobby Level



**Thanks for coming!**

**See you next year in  
2015 - 6-9 December**

*Crystal Gateway Marriott, Arlington, Virginia*