

# Conference Program

2020 Annual Meeting

**SRA 2020**  
Risk Science for Sustainability

December 13 - 17





# Society For Risk Analysis Annual Meeting

## 2020 Final Program

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### SRA Worldwide Headquarters

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### 2020 Council

**President:** Seth Guikema  
**President-Elect:** Robyn Wilson  
**Secretary:** Amanda Boyd  
**Treasurer:** Henry Willis  
**Treasurer-Elect:** Ben Trump  
**Past President:** Katherine McComas  
**Ex-Officio Students and Young Professionals Chair:**  
 Mariana Goodall Cains  
**Executive Secretary:** Brett Burk  
**Managing Director:** Jill Drupa

### Councilors

Mark Borsuk  
 Weihsueh Chiu  
 Jacqueline MacDonald Gibson  
 Myriam Merad  
 Nick Pidgeon  
 Pia-Johanna Schweizer  
 Vanessa Schweizer  
 Shital Thekdi  
 Amina Wilkins

### 2020 Award Winners

**Distinguished Achievement Award**  
 Anthony Fauci

**Outstanding Practitioner Award**  
 Richard Forshee

**Outstanding Practitioner Award**  
 Tom Burke

**Chauncey Starr Award**  
 Roger Flage

**Distinguished Educator Award**  
 Ann Bostrom

**Richard J Burk Outstanding Service Award**  
 Amber Jessup

**Distinguished Lecturer Sigma Xi**  
 Bernard Goldstein

**Fellow**  
 Felicia Wu  
 Peg Coleman  
 Shoji Tschudi  
 Yasunobu Maeda  
 Tee Guidotti  
 Glenn Rice

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# Committee Meetings and Events

Tuesday, December 15

**9:00 AM – 10:00 AM**

Career Pathway "Breakfast"

**1:30 PM – 2:30 PM**

Mentor 1 on 1's

## **Early Career Discussion Forums**

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Tuesday, December 15

**1:30-2:30 PM**

- Navigating academia for tenure
- Navigating academia as a student
- Grant writing
- Governmental careers
- Transitioning from academia to consulting
- Navigating rejection (articles, grants, jobs)
- From Associate to Full

## **Hot Topics in Risk Discussion Forums**

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Wednesday, December 16

**1:30-2:30 PM**

- Risk Science and COVID-19 Response
- Doing Inter- and Transdisciplinary Research
- Emerging Health Risks
- Anticipating the Future of Risk Communication
- Risk Science in Developing Economies
- Environmental and Social Justice
- Sustainability and Resilience

## **Specialty Group Meetings**

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Tuesday, December 15

**9:00-10:00 AM**

- Dose Response (DRSG)
- Economics & Benefits Analysis (EBASG)
- Occupational Health & Safety (OHSSG)
- Decision Analysis & Risk (DARSG)
- Security & Defense (SDSG)
- Ecological Risk Assessment (ERASG)
- Foundational Issues in Risk Analysis (FRASG)
- Risk, Policy & Law (RPLSG)

Wednesday, December 16

**9:00-10:00 AM**

- Risk & Development (RDSG)
- Applied Risk Management (ARMSG)
- Risk Communication (RCSG)
- Advanced Materials and Technologies (AMTSG)
- Resilience Analysis (RASG)
- Engineering & Infrastructure (EISG)
- Microbial Risk Analysis (MRASG)
- Exposure Assessment (EASG)

## **Committee Meetings**

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Wednesday, December 16

**9:00-10:00 AM**

- Education
- Membership
- Regions
- Students and Young Professionals

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Thursday, December 17

**1:30 PM – 2:30 PM**

Closing Remarks

# Exhibitors

## European Journal of Risk Regulation

[www.cambridge.org/ejrr](http://www.cambridge.org/ejrr)

The European Journal of Risk Regulation is a leading peer-reviewed interdisciplinary journal addressed at academics, professionals, policy-makers and all those involved or interested in the global risk landscape. Recent special issues discussed COVID-19, Disaster Management, and a European Health Union. Visit [cambridge.org/ejrr](http://cambridge.org/ejrr) to read these issues and others.

Interested in purchasing an individual annual subscription for £40/\$60?  
Visit [cambridge.org/ejrr/subscribe](http://cambridge.org/ejrr/subscribe) for more.

## Society for Risk Analysis

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

The Society for Risk Analysis (SRA) is a multidisciplinary, interdisciplinary, scholarly, international society that provides an open forum for all those who are interested in risk analysis. Risk analysis is broadly defined to include risk assessment, risk characterization, risk communication, risk management, and policy relating to risk, in the context of risks of concern to individuals, to public- and private-sector organizations, and to society at a local, regional, national, or global level.

## Toxicology Education Foundation

[toxedfoundation.org](http://toxedfoundation.org)

(TEF) is a non-profit charitable 501 (c)(3) foundation whose mission is to enhance public understanding of toxicology through access to objective, science-based information on the safety of chemicals and other agents encountered in daily life.

## University of Wisconsin-Madison, Department of Life Sciences Communication

[lsc.wisc.edu](http://lsc.wisc.edu)

Gold Sponsor

The Department of Life Sciences Communication is a world leader in science communication research, education and practice. We offer degrees in science communication including a bachelor's, master's, doctorate, and a Ph.D. minor. We also offer online summer courses in science, media and society, science writing, visual communication and social media.

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Life Sciences Communication

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# Workshops

Sunday, December 13

8:00 AM – 12:00 PM

## Eliciting Judgments from Experts and Non-experts to Inform Decision-making

*Cristina McLaughlin, US FDA  
Aylin Sertkaya, Eastern Research Group, Inc.  
Roger Cooke, Resources for the Future  
Frank Hearl, NIOSH*

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 (eg, 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 a popular topic.

1:00 PM – 5:00 PM

## Probabilistic Benchmark Dose Modeling for Dichotomous, Categorical, and Continuous Data, Part 1

*Kan Shao, Indiana University*

This full-day workshop will provide participants with fundamental knowledge of benchmark dose modeling and assessment methodology in a Bayesian framework and hands-on experience of using the Bayesian Benchmark Dose (BBMD) modeling system in support of probabilistic chemical risk assessment. The workshop will cover a number of topics, including probabilistic dose-response modeling in a Bayesian framework, benchmark dose analysis (especially distributional BMD estimation), and the use of web-based BBMD system to estimate BMD from dichotomous, categorical and continuous dose-response data, as well as probabilistic low-dose extrapolation from the estimated point of departure (ie, BMD). The probabilistic BMD modeling and analysis involves using Markov Chain Monte Carlo (MCMC) algorithm to fit mathematical dose-response models to toxicity data and estimating the distributions of model parameters and quantities of interest (eg, BMD), using appropriate statistics to evaluate goodness of fit and compare the statistical plausibility of dose-response models, and employing Monte Carlo simulation for probabilistic low-dose extrapolation. In addition to the probabilistic feature, the workshop will extensively explore the important features and functionalities of the BBMD system, including model averaged BMD estimation for all three data types, reliable and robust BMD estimation based on various definitions of BMR, and analyzing individually unique exposure response data (eg, epidemiological data) for BMD estimation. Moreover, the distributional estimates of BMD generated in BBMD can be seamlessly used to facilitate the WHO/IPCS probabilistic dose-response assessment framework.

1:25 PM – 5:50 PM

## Introduction to Health Risk Assessment of Environmental Chemical Mixtures

*Linda Teuschler, LKTeuschler & Associates  
Glenn Rice, US EPA/Office of Research and Development  
Richard Hertzberg, Biomathematics Consulting  
Moiz Mumtaz, ATSDR/CDC*

This problems-based, half-day, introductory workshop focuses on methods to assess health risks posed by exposures to chemical mixtures in the environment. Chemical mixtures health risk assessment methods continue to be developed and evolve to address concerns over health risks from multi-chemical exposures. This workshop presents key concepts and terminology used in chemical mixtures risk assessment for implementing component-based methods. Response addition and dose addition will be described and will include the following methods: the hazard index, interaction-based hazard index, relative potency factors, toxicity equivalence factors and integrated additivity. The risk assessment examples developed in the workshop are adapted from real-world mixture analyses, eg, waste site contaminants, pesticide applications, and drinking water disinfection by-product exposures. The “hands-on” exercise, demonstrating the methods is an essential part of this workshop. Discussions include real world examples, exercise results, and answers to general questions. (We ask participants to bring a calculator or laptop). The views expressed in this abstract are those of the authors and do not necessarily reflect the views or policies of the USEPA.

# Plenary Sessions

Monday, December 14

10:00 AM – 11:30 AM

## 40 Years of Risk Analysis

As we celebrate the 40th anniversary of the Society for Risk Analysis and the 50th anniversary of the United States Environmental Protection Agency, it is important to reflect on what has been accomplished over the last 50 years and what challenges lay ahead for the risk sciences. With a focus on the intersection of the environment and public health, our panelists will reflect on the major breakthroughs and accomplishments within their respective disciplines, as well as highlight how they believe the field of risk analysis has to evolve over the next 40 years to have maximum impact on societal well-being in the face of environmental degradation, climate change, and continued inequity in terms of exposure and impact across communities.

### Panel:

Dr Louie Rivers  
Dr Jade Mitchell  
Dr Jacqueline MacDonald Gibson  
Dr Jessica Boakye  
Dr John Besley  
Linda Teuschler

Tuesday, December 15

10:00 AM – 11:30 AM

## Sustainability, Risk and Environmental Justice

The UN Sustainable Development goals recognize that we will not achieve a truly sustainable future without paying careful attention to the linked challenges of environmental and social justice. The reality is that often the greatest environmentally-related health impacts are experienced by the most marginalized communities. The risk sciences are critical to understanding who disproportionately bears these risks, how to communicate these risks effectively, and ultimately how to build governance systems to reduce these inequities. Our featured speakers are highly regarded experts on the topics of environmental and social justice, and will speak to their current research in this space and highlight the opportunities moving forward for risk researchers.

### Panel:

Dr Karletta Chief  
Dr Danielle Purifoy

Wednesday, December 16

10:00 AM – 11:30 AM

## Building Sustainable Cities and the Role of Risk Analysis

Approximately half of the global population lives in urban centers, and as the rural to urban migration continues, it is expected that urban populations will almost double by 2050. Dense urban dwelling is a relatively new phenomenon in human history, and there are both excellent and poor examples of cities across the globe when it comes to assessing sustainability. Learning how to design (and redesign) cities to both accommodate these growing populations and minimize the impact of the growing population on the environment will be critical.

This plenary will feature Carlo Ratti, an Italian architect, engineer, inventor, educator and activist. He is a professor at the Massachusetts Institute of Technology where he directs the MIT SENSEable City Lab, a research group that explores how new technologies are changing the way we understand, design and ultimately live in cities. Several panelists will then offer a brief response highlighting the role that the risk sciences can play in helping achieve a more sustainable urban future.

### Panel:

Dr Tom Logan  
Dr Royce Francis  
Dr Wandu Bruine de Bruin  
Hanne van den Berg

# Technical Program

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

**12:00 PM – 1:30 PM**

*M1-A*

**Symposium: Exploring resilience and interdependencies in COVID-19 crisis: risk perception, health, economy, societal impacts and social response**

**12:00 PM**

The Covid-19 Pandemic and the Resilience of the Financial System

*Armin Haas*  
IASS

**12:15 PM**

COVID-19 Pandemic: Societal response and challenges for systemic risk governance

*Pia-Johanna Schweizer*  
IASS

**12:30 PM**

The Political Impact of COVID-19 Crisis: Cascade Effects and Mutual Outbidding in Imposing Measures of Lockdown and Opening-Up

*Jörg Radke*  
IASS

**12:45 PM**

Assessing resilience and interconnectedness of infrastructures exposed to COVID-19 by means of resilience indicators

*Sasa Jovanovic*  
IASS

**1:00 PM**

Corona Crisis: Important findings from perception and behavioral research

*Ortwin Renn*  
IASS

**1:15 PM**

Building resilience for a post-pandemic world: the Planetary Health narrative

*Nicole de Paula*  
IASS

**12:00 PM – 1:30 PM**

*M1-B*

**Symposium: The Road to Quantification of Adverse Outcome Pathways for Chemical Risk Assessment**

**12:00 PM**

Probabilistic prediction of acute toxicity events in warfighters using Bayesian Network Adverse Outcome Pathways (BN-AOPs)

*David Hines, Lyle Burgoon, Edward Perkins*  
USACE

**12:15 PM**

Thyroid Hormone Synthesis Inhibition and Neurodevelopmental Impairment in the Rat: Quantitative Understanding Within the Adverse Outcome Pathway Framework

*Iman Hassan, H El-Masri, PA Kosian, J Ford, SJ Degitz, ME Gilbert*  
USEPA

**12:30 PM**

Development, quantification and application of an adverse outcome pathway network of cholestatic liver injury

*Vinken Vinken*  
Vrije Universiteit Brussel

**12:45 PM**

Applying the Key Characteristics Approach for Qualitative and Quantitative Evaluation of the Toxicological and Mechanistic Evidence on Benzo[a]Pyrene-Induced Male Reproductive Toxicity

*Ingrid Druwe, JA Davis, Jeff Dean, Catherine Gibbons, Jason Lambert, Lucina Lizarraga, Xabier Arzuaga*  
US EPA NCEA

**12:00 PM – 1:30 PM**

*M1-C*

**Symposium: Sustainable Innovation and Development of Advanced Materials**

**12:00 PM**

A Definition and Categorization System for Advanced Materials: The Foundation for Risk-Informed Environmental Health and Safety Testing

*Taylor Rycroft, Al Kennedy, Igor Linkov*  
USACE ERDC

**12:15 PM**

Closing the loop, establishing the safety and sustainability of municipal waste conversion into a bio-based material for diverse applications

*Jo Anne Shatkin, Tato Bigio, Mike Thaman*  
Vireo Advisors

**12:30 PM**

Risk-screening of hafnia-based piezoelectric materials for responsible development

*Madison Horgan, Alex Hsain, Jacob Jones, Khara Grieger*  
North Carolina State University

**12:45 PM**

Towards Future Sustainable Digital Data Storage

*Reza Zadegan*  
North Carolina A&T State University

**1:00 PM**

Treating eutrophication with advanced materials: Key considerations for the responsible development of lanthanum-based materials?

*Yue (Cecile) Zhi, Chuhui Zhang, Rune Hjorth, Anders Baun, Owen W Duckworth, Douglas F Call, Jacob L Jones, Khara Grieger*  
North Carolina State University

**12:00 PM – 1:30 PM**

*M1-D*

**Symposium: Critical Thinking and Trust in Science: working towards a 'new normal' in risk communication in food and public health**

**12:00 PM**

Don't believe everything you read on social media! Ways to encourage skepticism in digital discourse

*Sarah Mojarad*  
University of Southern California

**12:15 PM**

Perceptions About Critical Thinking and Food During COVID-19

*Brandon McFadden*  
University of Delaware

**12:30 PM**

The power of moral intuitions in innovation narratives

*Giovanni Carrada*  
RAI

**12:45 PM**

Disentangling disinformation in science in the attention economy

*Camille Ryan, John Swarthout*  
Bayer Crop Science

12:00 PM – 1:30 PM

M1-E

**The Role of Pollution and Technology on Health and Safety Outcomes and Views**

**12:00 PM**

The Association between Air Pollution and Hospitalization for Patients with Systemic Lupus Erythematosus in Chile: A daily time series analysis.

*Sabit Cakmak, Robert Dales, Claudia Blanco-Vidal  
Health Canada*

**12:15 PM**

Perceived risk and the local experience of everyday pollution in a Steel Town in South Wales

*Karen L Henwood, Erin Roberts, Nick Pidgeon, Christopher Groves, Gareth Thomas  
Cardiff University*

**12:30 PM**

But they told us it was safe! Fracking policy, ripple effects and public perceptions of the risks of negative emissions technologies in the UK

*Nicholas Pidgeon, Emily Cox, Elspeth Spence  
Cardiff University*

**12:45 PM**

Risk Communication– Challenges, Opportunities when Emerging Contaminants are at Issue

*Jenny Phillips  
TRC*

**1:00 PM**

Wildfires and COVID-19: Risk Perception, Mitigation, and Opportunities for Emerging Technologies given Compound Threats

*Emily Wells  
Carnegie Mellon University*

12:00 PM – 1:30 PM

M1-F

**Decision and Risk Management Tools Incorporating Disparate and Critical Information**

**1:00 AM**

Extracting urban factors from COVID cases/deaths rates in the U.S. to inform model forecast extensions to other areas

*David LePoire, Cheng Wang  
Argonne National Laboratory*

**12:00 PM**

Augmented food safety issue detection and investigation system

*Moez Sanaa  
ANSES*

**12:15 PM**

African swine fever targeting model

*Noureddine Meraihi, Amir Ardalan Kalantari, Baekyun Park, Elio Abi Younes, Laith Mubaslat  
Canadian Food Inspection Agency*

**12:30 PM**

Mask on while Asian: How Acculturation, Media Use and Perception, and Alienation Influence U.S.-Dwelling Chinese's Protective Behaviors during the COVID-19 Pandemic

*Hang Lu, Haoran Chu, Yanni Ma  
University of Michigan*

**12:45 PM**

Lies, Damn Lies and Statistics

*Ian Hall  
University of Northampton*

12:00 PM – 1:30 PM

M1-G

**Lightning Session: Better understanding risks in the COVID-19 Pandemic**

**12:00 PM**

Increase in mortality during the COVID-19 epidemics: direct and indirect impact of the virus on all-causes mortality

*Dario Gregori, Danila Azzolina, Elisa Gallo, Daniela Ferrante, Corrado Magnani  
University of Padova*

**12:05 PM**

From your not-so-friendly neighborhood doctor: style, distance and risk communication in the time of COVID-19

*Haoran Chu, Shupeiyuan, Sixiao Liu  
Texas Tech University*

**12:10 PM**

**Covid-19, vaccine hesitancy, social AMplification: a systems perspective**

*Rob Goble, Heidi J Larson  
Clark University*

**12:15 PM**

COVID-19 Insights from Daily Hospital, Testing, Case, and Fatality Data

*Margaret MacDonell, Young-Soo Chang, Cheng Wang, David LePoire, Ignacio Martinez-Moyano, Tran Nguyen Khanh, Charles Macal, Jonathan Ozik, Chaitanya Kaligotla, Nicholas Collier  
Argonne National Lab*

**12:20 PM**

Public risk perception, behaviors and emotion regulation under major public health emergency

*Shenming Song, Chen Wang, Dongyuan Zhan  
Tsinghua University*

**12:25 PM**

Voluntary vs. Involuntary Corrective Messages in Risk Communication

*Joseph Ripberger, Kuhika Gupta, Hank Jenkins-Smith, Carol Silva, Andrew Fox, Jennifer Ross, Scott Robinson  
University of Oklahoma*

**12:30 PM**

Perceptions of human-animal similarity impact risk judgments and intentions to engage in avoidance behaviors for zoonotic diseases

*Tyler Davis, Mark LaCour, Brent Hughes, Micah Goldwater, Molly Ireland, Darrell Worthy, Jason Van Allen, Nick Gaylord, Garrett Van-Hoosier  
Texas Tech University*

**12:35 PM**

Reasoning about novel risks: How does scientific reasoning ability relate to behavioral and attitudinal responses to the COVID-19 pandemic?

*Caitlin Drummond, Alex Segrè Cohen, Lauren Lutzke, Joseph Árvai  
Arizona State University*

**12:40 PM**

Computational fluid dynamics simulations informing risk: implications about viral transmission in school rooms

*Shamia Hoque, Dahae Seong, Mark Weir, Jade Mitchell  
University of South Carolina*



12:00 PM – 1:30 PM

*M1-H*

**Roundtable: Risk Analysis at 40 - Past Progress and Future Promise**

As part of our celebration of SRA's 40th Anniversary, this roundtable invites SRA leaders who contributed to the 40th Anniversary Special Issue of the journal Risk Analysis to share their thoughts on progress to date and the future of the field and discipline of risk analysis. The roundtable focuses on three main topics: 1. What have we learned? What lessons about the foundations, principles, methods, and practice of risk analysis have been most useful in improving risk-informed decision-making, policy making, deliberation, and governance? 2. What don't we know? What are some of the most important remaining challenges in increasing the value of risk analysis? 3. Where are we headed? Which challenges are being addressed now, or are likely to be addressed soon? Where are breakthroughs needed, and what developments in other fields, as well as in risk analysis, might help make them? What are the grand challenges that lie ahead that we don't yet know how to address very well, but that we might understand better in the next decade? The roundtable will include short summaries of views from participants and plentiful Q&A and discussion.

**Chair:** Katherine McComas

**Panelists:** Tony Cox, Warner North, Jonathan Wiener, Howard Kunreuther, Dominic Balog-Way, Charles Haas, Elizabeth Anderson, Terje Aven, Ortwin Renn, Felicia Wu

12:00 PM – 1:30 PM

*M1-I*

**Roundtable: Ethics, Workers, Risk and the 2020 Pandemic – A "Invisible Theia" Collision**

The 2020 pandemic has highlighted age-old workplace safety and health issues and raised questions about fundamental aspects of life, including the degree of risk to accept, transfer, and/or impose on some to assure survival of others or the whole. While identifying workplace hazards and associated risks is not new, the pandemic has placed in stark relief historic tension as not seen before between imperatives to work (for workers, businesses, and society as a whole) and impacts to health and well-being. Ever since the establishment of superior-subordinate relationships, be they lessor-lessee, employer-employee, master-indentured, to name a few, business and workers have been faced with balancing the concept safe with economically viable. How these terms are defined and put into decision-making practice is not static, they change with time and circumstances. Three hundred years ago Thomas Otway famously wrote, "Clocks will go as they are set, but man, irregular man, is never constant, never certain." The variety of ways countries and people have responded to the 2020 pandemic reveals a full panoply of trust, panic, science, non-science, conspiracies, and preventive efforts. Health and safety professionals and risk managers in both the public and private sectors have struggled with how to navigate these same but always a bit different tensions for decades. This roundtable has assembled thought-leaders in the occupational health and safety (OHS) field from a wide-range of sectors, representing worker, business, insurance, public policy, and OHS risk science perspectives. Brief overviews of each perspective will be presented. The panel will then field questions that: retrospectively examine how the 2020 pandemic's impact could have been better anticipated (preparation); at response measures and how they could have been better handled; and, at what lessons can be learned to (hopefully) be better prepared for the future pandemics and/or disasters.

**Chair:** Charles Redinger

**Panelists:** Chris Peace, Mary O'Reilly, Frank Hearl, Christina McLaughlin, Fred Boelter, Adam Finkel

2:30 PM – 4:00 PM

POSTER-1

Poster Session: Policy, Law and Governance

**Policy needs for earlier chemical data collection and evaluation for sustainable US DoD acquisition**

*Andrea R Hindman, Kelsey Hendrixson, Andrew Rak, Patricia Underwood*  
*American Association for the Advancement of Science, supporting Department of Defense, Office of the Deputy Assistant Secretary of Defense for Environment*

**Evaluating Impacts to the DoD Mission and the Defense Industrial Base from Chemical Regulation Under the Amended Toxic Substances Control Act**

*Emma Williams, Margaret R Graham, Catherine M Vogel, Andrew Rak, Patricia Underwood*  
*Noblis*

**Potential Contamination of Private Water Wells in Texas (2017-2020)**

*Allison Jenkins, Sainath Babu*  
*Texas Commission on Environmental Quality*

**Making a framework for investigating the suitability of wastewater effluent for irrigation with regards to mixture of Engineered Nanoparticles**

*Radhika Bhardwaj, Tanushree Parsai, Toru Watanbe, Arvind Kumar Nema, Arun Kumar*  
*Indian Institute of Technology, Delhi*

**The Effect of Public Attitude towards Policy Instruments on the Mechanisms of Urban Waste Sorting Behavior**

*Chuanshen Qin, Ziyi Chen*  
*Shanghai Jiao Tong University*

**Lessons from the US lead phasedown: could Europe have 'better regulated' vehicle emissions?**

*Maeve McLoughlin*  
*King's College London*

**Reconsideration of the relation between risk assessment and impact assessment**

*Takehiko Murayama, Shigeo Nishikizawa, Atsushi Nagaoka, Kultip Suwanteep*  
*Tokyo Institute of Technology*

**Managing risks to our human futures: the ultimate sustainability is sustainability of our future prospects**

*James Blodgett*  
*Global Risk Reduction Special Interest Group, in Mensa*

**Exploring Tacit Knowledge Dimensions for Disaster Risk Management**

*Abhinav Walia, Graham Brewer, Thayaparan Gajendran*  
*The University of Newcastle, Australia*

**Git Along Little Genie's, Test Tube Proteins**

*Richard Williams*  
*George Mason University*

**Plutonium disposition and risk analysis: How important is risk assessment?**

*Michael Greenberg*  
*SRA*

**Aggregated Cyber Risk: The Mighty Sand Castle**

*Omer Keskin, Cesar Pinto*  
*Old Dominion University*

**Environmental pollution risks of federal procurement: Linking toxic waste management along the federal contractor supply chain**

*Dustin Hill, Mary Collins*  
*State University of New York College of Environmental Science and Forestry*

**Estimating the Cost Hospitalizations from Foodborne Illnesses in the US**

*Sandra Hoffmann, Elaine Scallan Walker, Satvinder Dhaliwal, Alice White, Jae-Wan Ahn*  
*United States Department of Agriculture Economic Research Services*

**Probabilistic Assessment of Community Flood Adaptation based on Cost-Benefit Analysis under Sea-Level Rise**

*Yu Han*  
*University of Florida*

**Burning Concerns: Wildfires and the problem of insurability in California**

*Sophie Wilson, Matthias Klaus*  
*King's College London*

**Assessment of Post-Development AI Ethical Risks**

*Thora Knight, Bariela Capollari, Unal Tatar*  
*University at Albany*

2:30 PM – 4:00 PM

POSTER-2

Poster Session: Risk Communication and Messaging

**Finding the right data and emotion to engage people with climate change: A study of paleoclimate and computer-derived research presented as hopeful or desperate**

*Annie Zhang, Lee Ann Kahlor*  
*University of Texas at Austin*

**For the public by the public: Can citizen science provide sustainable public engagement in risk-related decision-making?**

*Abby Roche, Laura N Rickard*  
*University of Maine*

**Comprehension and communication of probabilistic information in hurricane forecasts**

*Jinan N Allan, Joseph T Ripberger, Kuhika Gupta, Edward T Cokely, Carol Silva, Hank Jenkins-Smith*  
*University of Oklahoma*

**Risk information seeking and the role of perceived risks, perceived benefits and related affect: The case of highly effective sunscreens that damage coral reefs**

*Wan Wang, LeeAnn Kahlor, Lucy Atkinson*  
*Moody College of Communication at The University of Texas at Austin*

**Why people are risky (or not): qualitative analysis of food handling practices**

*Lisa Shelley, Chris Bernstein, Ellen Shumaker, Sheryl Cates, Benjamin Chapman*  
*North Carolina State University*

**Fish, farms, and shared futures: Exploring stakeholder risk and benefit perceptions of land-based aquaculture in a multi-state case study**

*Laura Rickard, Bridie McGreavy, Branden Johnson, Cynthia Houston, Sarah Wagner*  
*The University of Maine*

2:30 PM – 4:00 PM

POSTER-2

Poster Session: Risk Communication and Messaging

**Risk Perception and Communication of Air Pollution in London**

*Beca Williams  
King's College London*

**Trials to mitigate the risk perception of electromagnetic fields by using teaching materials for pregnant women**

*Chiyoji Ohkubo  
Japan EMF Information Center*

**Algorithm?**

*Sanja Mrksic Kovacevic, Frederic Boudier, Katherine Payne, Caroline Vass  
University of Stavanger*

**To be worth a thousand words, explore the effects of emotional and informational images in anti-e-cigarette Instagram message**

*Shupey Yuan, Ran Duan  
Northern Illinois University*

**How Messages Attributes Change Public Risk Attitudes towards 5G Infrastructure Deployment**

*Chuanshen Qin, Jingnan She  
Shanghai Jiao Tong University*

**Investigating the Effectiveness of Fairness Messages in Responding to a Food Crisis**

*Nagwan Zahry, John C. Besley  
University of Tennessee at Chattanooga*

**Discussing risk: Social network analysis and content analysis of Dutch Tweets on 6 risk cases in the Netherlands.**

*Nina Lauran, Lidwien van de Wijngaert, Florian Kunnean  
Radboud University Nijmegen*

**Communicating biodiversity loss: gain/loss message framing and its influence on donation intention**

*Josephine Martell, Rodewald Amanda  
Cornell University*

**“Stay Out of the News”: The Relationship of Agenda Setting and Framing in Mass Media**

*Eleni Bickell, Nicholas Kalaitzandonakes  
University of Missouri*

**Alzheimer’s disease knowledge among American Indians and Alaska Natives**

*Amanda Boyd, Alyssa Mayeda  
Washington State University*

**Communication Research In Risk Management: New Streams In Large-Scale Literature Review**

*Iwona Gorzen-Mitka*

2:30 PM – 4:00 PM

POSTER-3

Poster Session: Risk Perception and Behavior Change

**Chinese panic behaviors in earthquakes**

*Shoji Tsuchida, Guofang Zhai, Taketo Shizuma, Kaoru Urayama, Minoru Kubo, Kayo Omura  
Kansai University*

**Understanding the Relationship Between Direct Experience and Risk Perception of Natural Hazards**

*Pamela Cisternas, Nicolás Bronfman, Paula Repetto, Javiera Castañeda, Eliana Guic  
CIGIDEN*

**Towards understanding public attitude towards use of reclaimed water: Survey-based findings of two Delhi-based academic institutions**

*Arun Kumar, Shreya Guha, Patrick L. Gurian  
IIT Delhi*

**Using photovoice to understand coastal residents’ visions of social-ecological change in Maine**

*Kevin Duffy, Laura Rickard  
University of Maine*

**Numeracy Predicts Accurate Knowledge and Beliefs about Global Warming**

*Jinhyo Cho, Madhuri Ramasubramanian, Jinan N. Allan, Adam Feltz, Rocio Garcia-Retamero, Edward T. Cokely  
University of Oklahoma*

**How CO-VID19 exposed the lack of risk-management market sustainability: survey of risk-communication networks between the U.S. (CA/NY) and Norway’s government agencies, media and politicians in response to COVID-19 and its effect on risk perception**

*Joel Alba, Frederic Emmanuel Boudier  
UIS*

**Domestic food risk management and ethical behaviours. Results of an ethnographic study in Northern Italy.**

*Alice Brombin, Giulia Mascarello, Valentina Rizzoli, Mosé Giaretta, Fabrizio Personeni, Ravarotto Licia  
Istituto Zooprofilattico Sperimentale delle Venezie*

**Why did many people wear masks against COVID-19 in Japan?**

*Kazuya Nakayachi, Taku Ozaki, Yukihide Shibata, Ryosuke Yokoi  
Doshisha University*

**A new age of nuclear waste disposal in Germany: current findings on trust and risk perception**

*Roman Seidl, Cord Drögemüller, Pius Krütli, Clemens Walther  
Leibniz University Hannover, Institute of Radioecology and Radiation Protection*

**Quantifying breast cancer screening preferences ordering effects for risk based groups**

*Emily Grayek, Yanran Yang, Baruch Fischhoff  
Carnegie Mellon University*

**Risks associated with rural broadband: as seen through the lenses of the planning community**

*Javier Valentín-Sívico, Casey Canfield  
Missouri University of Science and Technology*

**Opportunities to Improve Work Zone Zipper Merge Compliance Using Behavioral Science**

*Maria Galbraith, Casey Canfield  
Missouri University of Science and Technology*

**The Role of Psychological Reactance in Smart Home Energy Management Systems**

*Matthew Heatherly  
Missouri University of Science and Technology*

2:30 PM – 4:00 PM

POSTER-3

**Poster Session: Risk Perception and Behavior Change**

**Risk assessment and public perception survey on a hydrogen refueling station and a gas station**

*Kyoko Ono  
RISS, AIST*

**Risk-informed Robust Off-site Protective Action Decision Making for Nuclear Power Plant Emergencies**

*Adam Stein, Paul Fischbeck  
Carnegie Mellon University*

**A Statistical Analysis of Household Evacuation in Response to Hurricane Harvey**

*Alexander Abuabara, Walter Gillis Peacock, David H Bierling, Michael K Lindell  
Texas A&M University*

**Dependence on automation in a binary decision task under high risk: a preliminary study on the influence of knowledge expertise and automation reliability**

*Hannah Felske, Casey Canfield  
Missouri S&T*

**From concept to standardization: an analysis of the risk management scenario applied to certifiable management systems**

*Vinícius Oliveira, Vitor Homem de Mello, Maximilian Rebelo, Manuel Ferreira, Otávio José  
Universidade Estadual Paulista*

**Modeling Hurricane Evacuation Departure Times Using Location Data**

*Valerie Washington, Seth Guikema, Joi Mondisa, Aditi Misra  
University of Michigan*

2:30 PM – 4:00 PM

POSTER-4

**Poster Session: Microbial, Ecological and Environmental Risk Assessment**

**Evaluation of microbial health risks faced by seasonal migrant farmworkers: A Canadian case study**

*Nadwa Elbadri, Philip J Schmidt, Jenna Hennebray, Monica B Emelko  
University of Waterloo*

**Sensor-based monitoring for predicting the early sign of Covid-19 outbreak from environmental media: Knowns and unknowns**

*Neha Tyagi, Arun Kumar, Ashok Mulchandani, Sandeep Jha, Vivekanandan Perumal, Joan Rose  
Indian Institute of Technology, Delhi*

**An agent-based model of COVID-19 transmission in Canada**

*Ainsley Otten, Victoria Ng, Aamir Fazil, Lisa Waddell, Christina Bancej, Patricia Turgeon, Nicole Atchessi, Nicholas H Ogden  
Public Health Agency of Canada*

**Exploring the predictive capability of advanced machine learning in identifying severe disease phenotype in Salmonella for application in microbial risk assessment**

*Shraddha Karanth, Collins K Tanui, Jianghong Meng, Abani K Pradhan  
University of Maryland*

**A machine learning-based predictive modeling approach for food source attribution of Listeria monocytogenes**

*Collins Tanui, Shraddha Karanth, Abani Pradhan  
University of Maryland*

**Assessment of sustainability and environmental impacts by recycling rare metals for electric vehicle batteries in Japan**

*Tomoya Sakunai, Lisa Ito, Akihiro Tokai  
Osaka University*

**Application of the analytical hierarchy process (AHP) for geo-hazards susceptibility mapping: Urban settlement Marquez De León, La Paz., Mexico**

*Joel Hirales-Rochin  
Technological Institute of La Paz*

**Investigating the effect of water temperature on Legionella risks in a full scale home**

*Ryan Julien, Jade Mitchell  
Michigan State University Biosystems Engineering*

**How much protection to do Australia's biosecurity controls provide?**

*Aaron Dodd, Natalie Stoeckl, John Baumgartner, Tom Kompas  
University of Melbourne*

**Legionella growth under long term stagnation in premise plumbing**

*August Pendergast  
Drexel University*

**E-waste trade in the global arena: Guiyu, the world's technological dumpster**

*Maria-Diandra Opre  
King's College London*

2:30 PM – 4:00 PM

POSTER-5

**Poster Session: Dose-Response Assessment**

**Chemical-Specific Adjustment Factor (CSAF) for Developmental Toxicity of Perfluorooctanoate (PFOA)**

*Bernard Gadagbui, Michael Dourson, Chijioko Onyema, Patricia McGinnis, Raymond York  
Toxicology Excellence for Risk Assessment (TERA)*

**Decreasing uncertainty in existing MRL values and derivation of new MRL values in the absence of new health effects data via use of updated methodologies**

*Kimberly Zaccaria, Lisa Ingerman, Carolyn Harper, Susan Ingber  
SRC, Inc*

**A Comparison between Minimal Risk Levels (MRLs) and Derived No Effect Levels (DNELs) when using Registration, Evaluation, Authorization and Restriction of Chemicals REACH guidance to derive MRLs**

*Jennifer Przybyla, Yulia Carroll  
ATSDR*

**Bayesian dose-response modeling and benchmark dose calculation for categorical data**

*Xiao Xu, Kan Shao, Gulling Yang  
Indiana University at Bloomington*

**Establishing an oral drinking water reference dose for benzophenone- an evaluation of human relevance, adaptive and adverse modes of action, target organs, and integration of new approach methodologies**

*Kelly Magurany  
NSF International*

**Epigenetic Associations with Biomarker Levels after Occupational Exposure to Asthma-Inducing Isocyanates**

*Laura Taylor, John French, Zachary Robbins, Leena Nylander-French  
University of North Carolina at Chapel Hill*

2:30 PM – 4:00 PM

## POSTER-5

## Poster Session: Dose-Response Assessment

**Applying Hypothesis-Testing Methods to Help Inform Causality Conclusions from Epidemiology Studies***Sabine Lange, Lalita Shrestha, Swati Rawat  
Texas Commission on Environmental Quality***Health effects of household air pollution***Jessica Evans, Jacqueline MacDonald Gibson  
Indiana University***A systematic evaluation of the mechanistic data relevant to in utero exposures to trichloroethylene and the development of congenital heart defects***Jon Urban, Daniele Wikoff, Grace Chappell, Laurie Haws  
ToxStrategies***Chemical-Specific Adjustment Factor (CSAF) for Procymidone (PCM)***Bernard Gadagbui, Michael Dourson, Raymond York, Patricia McGinnis, Rhian Cope  
Toxicology Excellence for Risk Assessment (TERA)***Differential Cytotoxicity of Haloaromatic Disinfection Byproducts and Lead Co-Exposures against Human Intestinal and Neuronal Cells***Jiaqi Liu, Cody Olson, Ning Qiu, Christie M Sayes  
Baylor University***Incorporation of pre-exposure antibiotic use in Clostridioides difficile dose-response model***Madeline Lewis, Mark Weir  
Ohio State University***Reducing uncertainty in estimates of PM2.5 exposures to sensitive subpopulation using the Multiple Path Particle Dosimetry Model***Ananya Das, Arun Kumar, Gazala Habib, Perumal Vivekanandan  
IIT DELHI***Excess mortality from Climate Change in Chile 2050***Luis Cifuentes, Daniela Quiroga, Jose-Miguel Valdes, Pedro Carmona, Camila Cabrera  
Pontificia Universidad Católica de Chile*

2:30 PM – 4:00 PM

## POSTER-6

## Poster Session: Simulation Modeling and Model Development

**Validating Adaptive Behavior Models of Adversaries for Risk Assessment (VABMARA)***Gary Ackerman, Brandon Behlendorf, Jun Zhuang, Douglas Clifford, Kyle Hunt  
University at Albany, SUNY***Exploring the contagion effect of social media on mass shootings***Dixizi Liu, Zhijie Dong, Damain Valles Molina  
Texas State University***Spatio-temporal Health Risk Assessment of BTEX Exposure in Taiwan Using Geo-statistical Approaches.***Tzung-I Chou, Shao-Zu Huang, Kuen-Yuh Wu, Hwa-Lung Yu, Chang-Fu Wu  
National Taiwan University***Spatial Structure of Objective Risk Indicators in Lithuania***Aistė Balžekienė, Agnė Budžytė, José Manuel Echavarren, Audronė Telešienė, Eimantė Zolubienė  
Kaunas University of Technology***Bladder cancer burden of disinfection byproducts in the US: Insights from a dynamic model***Anna Belova, Isabelle Morin, Elena Besedin, Kate Munson, Uxue Zurutuza  
ICF International***Air pollution and atrial fibrillation: how the model matters***Elisa Gallo, Dario Gregori, Franco Folino, Francesca Liguori, Luca Zagolin, Sabino Iliceto  
University of Padova***Practical framework for evaluating NATECH risk and its options in connection with chemical management under the disaster scenario in Japan***Akihiro Tokai, L Ito, T Nakakubo, H Nguyen, L Muchangos  
Osaka U***Resource allocation optimization problem for power outage restoration under uncertainty***Elnaz Kabir, Seth Guikema  
University of Michigan***Comprehending Pregnancy Risk With the Assistance of a Computational Decision-Making Model***Keri Stephens, Radek K Bukowski, Kelly Gaither, Karl W Schultz, Dave Semararo, Thaleia Zariphopoulou, Cassidy S Douchet  
University of Texas***Resilience evolution analysis for Arctic shipping route by modeling information entropy into system dynamics***Xiaoxue Ma, Yang Liu, Weiliang Qiao  
Dalian Maritime University***Threat and Risk Modeling for Cybersecurity of Industrial Product***Kenneth Crowther  
General Electric***Computational approaches to inform engineering options for recycling plastics***Minh Vo, Aijalon Kilpatrick  
Argonne National Lab*

2:30 PM – 4:00 PM

POSTER-6

## Poster Session: Simulation Modeling and Model Development

**Informing Performance Tradeoffs for Responsible Plastics Innovation**

*Cristina Negri, Margaret MacDonell, Minh Vo, Kurt Picel, Bruce Biber, Rao Kotamarthi, Andres Tapia  
Argonne National Lab*

**Risk Analysis for oil pipelines in Southeast Colombia**

*Alvaro Javier Hernandez Baez, Esperanza Torres, Diego Pradilla  
University of Los Andes*

**Fast prediction of wildfire spread: a surrogate to physics-based simulations**

*Nima Masoudvaziri, Prasangsha Ganguly, Kang Sun, Sayanti Mukherjee  
University at Buffalo*

**An approach for guiding equitable climate adaptation and community resilience**

*Mitchell Anderson, Tom Logan, Dai Kiddle  
University of Canterbury*

**Enhancing the resilience of the Metropolitan City of Venice (Italy) to climate-related impacts: a multi-risk perspective.**

*Beatrice Sambo, Marta Bonato, Anna Sperotto, James H Lambert, Igor Linkov, Andrea Critto, Silvia Torresan, Antonio Marcomini  
University of Ca' Foscari- CMCC*

**Resilience of Solar Energy Generation to Hurricanes**

*Luis Ceferino, Ning Lin, Dazhi Xi  
Princeton University*

**Multivariate prediction model for green house gas emission of buildings in New York city**

*Arkaprabha Bhattacharyya, Mohamadali Morshedi Shahrebabaki, Makarand Hastak  
Purdue University*

**Data Analytics for Cyber Risk Analysis: Utilizing Cyber Incident Datasets**

*Melissa Portalatin, Omer Keskin, Sneha Malneedi, Owais Raza, Unal Tatar  
University at Albany*

**Modeling Mitigating measures effect on incidences of COVID 19 Risks**

*Emma Anyika  
The Co-operative University of Kenya*

2:30 PM – 4:00 PM

POSTER-7

## Poster Session: Food Exposure Assessment

**Probabilistic dietary risk assessment of procymidone based on food monitoring data in Zhejiang province (China) from 2012 to 2016**

*Dou Wang  
Institute of Quality and Standard of Agricultural Products Zhejiang Academy of Agricultural Sciences*

**Assessing exposures to inorganic Arsenic by daily consumption of rice produced in Ho Chi Minh city, Vietnam**

*Ha Phan Ai Nguyen, Nantika Soonthornchaikul, Yen Hoang Cu  
Institute of Public Health at Ho Chi Minh city*

**Probabilistic Assessment of Cancer Risk for Lasiocarpine and Senkirkine though Daily Consumption of Low Fat Milk, Cheese, and Honey**

*Yu-Hsuan Kuo, Shao-Zu, Huang, Su-Yin Chiang, Kuen-Yuh Wu  
National Taiwan University*

**Risk Assessment of Methylmercury in Salmon Using Taiwan Food Consumption Database and Taiwan Traditional Snacks Consumption Database**

*Cheng-Sian Chen, She-Yu Chiu, Ting-Hsuan Chou, Kang-Yong Liu, Cheng-Han Li, Yu-Chen Chang, Wen-Chao Ho  
China Medical University*

**Risk Assessment of Patulin in Apple juice Using Taiwan Food Consumption Database**

*Yu Chen Chang, She-Yu Chiu, Kung-Yung Liu, Ting-Hsuan Chou, Cheng-Han Li, Wen-Chao Ho  
TSRA*

**International Comparison of Probabilistic Assessment of Health Risk due to Cumulative Exposures to Perfluorinated Compounds**

*Pin-Yi Hsu, Shao Zu Huang, Kuen Yuh Wu  
Institute of Environmental and Occupational Health Sciences, National Taiwan University*

**Inference from High-Dimensional Data: A Case Study of Dietary Supplements and Metal Body Burdens**

*Anna Belova, Ryan Klein, Lauren Olsho, Anne Riederer  
ICF International*

**Use of probabilistic risk assessment and physiologically based pharmacokinetic modeling in supporting soil remedial objectives for dioxins and furans at a Canadian site**

*Camarie Perry, William Rish, Caroline Ring, Liz Mittal, Mark Harris  
Tox Strategies*

**Engineered nanomaterials and water reuse: Lessons learned from eight-year research activities at IIT Delhi India and identified issues ahead**

*Shraddha Shahane, Divya Singh, Tanushree Parsai, Arun Kumar  
IIT Delhi*

**Cell-cultured meat and seafood: a collaborative approach towards safe manufacturing and product development**

*Kimberly Ong, Isha Datar, Jeremiah Johnston, Jo Anne Shatkin  
Vireo Advisors*

2:30 PM – 4:00 PM

POSTER-8

## Poster Session: Environmental Exposure Assessment

**Overcoming Challenges in Emergency Risk Assessment: Case Study of a Fungicide in a Public Drinking Water System**

Sainath Babu, Allison Jenkins, Sabine Lange, Joseph "Kip" Haney  
Texas Commission on Environmental Quality

**Application of EPA Computational Toxicology Tools to the Assessment of Drinking Water Contaminants of Concern**

Christopher Greene, Kristin Isaacs, Kathie Dionisio, Jonathan Wall, Allison Langer, Lauren Koval  
SRA

**Modeling styrene intrusion pathways into buildings during cured-in-place-pipe (CIPP) installation and its safety evaluation**

Yoorae Noh, Brandon E Boor, Jonathan H Shannahan, Chad T Jafvert, Andrew J Whelton  
Purdue University

**Department of Defense reflections on the first ten high-priority chemicals evaluated under TSCA**

Anita K Meyer, Andrea R Hindman  
American Association for the Advancement of Science, supporting Department of Defense, Office of the Deputy Assistant Secretary of Defense for Environment

**Comparative radiation doses associated with uranium miners and radiotherapy, and implications for mesothelioma risk**

Amber Banducci, Jennifer Sahmel  
Insight Exposure & Risk Sciences

**Challenges of epidemiological assessments of point source carcinogen exposures and community health**

Daniel Lauer, Jessica Dent, Ken Mundt, Bill Thompson, Elizabeth Best  
Cardno ChemRisk

**Health Assessment Status Use and New Diagnosed Sarcopenia Among Chronic Kidney Disease Patients**

Wen-Chao Ho, Pei-Hsuan Chang, She-Yu Chiu, Min-Hua Lin, Pei-Hsuan Chang  
China Medical University

**Comparison of health risks derived from road traffic noise and air pollution**

Yuki Okazaki, Lisa Ito, Akihiro Tokai  
Osaka University

**Practical evaluation of measure options for Natech risks related to a chemical release accident along the riverine area in Japan**

Lisa Ito, Tokai Akihiro, Toyohiko Nakakubo  
Osaka University

**A data calibration approach for the low-cost PM2.5 sensing network**

Hwa-Lung Yu, Chieh-Han Lee  
National Taiwan University

**Math Matters! The Small Mathematical Error that Has Big Consequences on Data Analysis, Regulation, and Risk-Based Protection of Public Health**

Philip Schmidt, William B Anderson, Monica B Emelko  
University of Waterloo

2:30 PM – 4:00 PM

POSTER-9

## Poster Session: Uncertainty Assessment and Modeling

**Classification scheme for information assets as basis for information security and cybersecurity**

Juan Carlos Angarita Castellanos  
IMS/OHT Global

**Advancing the Detection of Sex Trafficking Anomalies using Online Advertisements**

Julia Coxen, Vanessa Castro, Bridgette Carr, Seth Guikema  
University of Michigan

**Technical criteria relevant to data quality assessment to improve uncertainty related with entry data in risk analysis.**

Juan Carlos Angarita Castellanos  
IMS/OHT Global

**Effect of uncertainty in nanoparticle concentration on risk due to consumption of spinach irrigated with nanoparticle contaminated water media**

Radhika Bhardwaj, Arun Kumar, Toru Watanabe  
Indian Institute of Technology, Delhi

**Studying Power System Damages Using Bayesian Belief Network Analysis**

Elnaz Kabir, Seth Guikema, Steven Quiring  
University of Michigan

**Dependable Confidence with Singhing**

Alex Wimbush, Nicholas Gray, Scott Ferson  
University of Liverpool

**The Los Alamos National Laboratory environmental remediation risk tool: improving the decision-making process with visualization of proposed remediation options.**

Patricia Wald-Hopkins, Tracy McFarland, Dave Frank  
N3B Los Alamos

**Managing Surprise in Infrastructure Systems**

Daniel Eisenberg, David Alderson, Thomas Seager  
Naval Postgraduate School

**Occupational Health by Design: Use of Exploratory Analysis for Optimizing Health Risk Objectives with Other Competing Interests in an Automated Workplace Design**

Shao-Zu Huang, Su-Yin Chiang, Kuen-Yuh Wu  
National Taiwan University

**Uncertainty Interrogation Methods for Computer Code Models**

Adam Stein, Paul Fischbeck, Ken Redus  
Carnegie Mellon University

**Probabilistic Risk Assessment of Tobacco Product Risk through Monte Carlo Methods**

Chastain Anderson, Timothy Langston, Donna Smith  
Altria Client Services

**A consensus of probabilistic predictions by experts and trained forecasters of the timing and efficacy of a SARS-CoV-2 vaccine**

Thomas McAndrew, Juan Cambeiro, Tamay Besiroglu, Daniel Sluder  
Lehigh University

**Managing Future Risk of Increasing Simultaneous Megafires**

Alison Cullen, Harry Podschwit, Linda Mearns, John Abatzoglou, Seth McGinnis, Melissa Bukovsky, Susan Prichard  
University of Washington

12:00 PM – 1:30 PM

T1-A

**Symposium: COVID-19: Risk Communication and Social Dynamics of Transmission and Vulnerability #1**

**12:00 PM**

Communicating scientific uncertainty during a rapidly evolving situation: An examination of the Canadian news media in early days of COVID-19  
*Michelle Driedger, Gabriela Capurro, Joshua Greenberg, Cindy G Jardine, Jordan Tustin*  
*University of Manitoba*

**12:15 PM**

The COVID-19 Narrative: Risk Communication in the age of pandemic uncertainty  
*Christopher Cummings*  
*North Carolina State University*

**12:30 PM**

Flattening the curve for COVID-19 risk information avoidance: The role of norms, attitudes, affect, social dominance orientations and mistrust in scientists  
*Wan Wang, LeeAnn Kahlor, Lucy Atkinson, Patrick Jamar, Hayoung Sally Lim*  
*Moody College of Communication at The University of Texas at Austin*

**12:45 PM**

Partisan Media Use and Risk Avoidance Behaviors: Adapting the RISP and TPB to COVID-19  
*Won-Ki Moon, Lucy Atkinson, Lee Ann Kahlor, Chung In Yun, Hyunsang Son*  
*The University of Texas at Austin*

**1:00 PM**

Reducing infectious disease transmission for travelers visiting friends and relatives through enhanced risk communication  
*Cindy Jardine, Martha Dow, Satwinder Bains, S Michelle Driedger, Marinel Kniseley, Spencer Huesken*  
*University of the Fraser Valley*

12:00 PM – 1:30 PM

T1-B

**Symposium: Exposure and Risk Assessment of 3D Printing and Emerging Materials**

**12:00 PM**

NanoPHEAT: Forecasting the exposures and toxic effects of nanomaterials (MWCNT and Ag NPs) as released from real products  
*Joana Sipe, Melissa Chernick, Jaleesia Amos, Nathan Bossa, William Berger, Keana Scott, Alan J Kennedy, Treye Thomas, David E Hinton, Christine Ogilvie-Hendren, Mark R Wiesner*  
*Duke University*

**12:15 PM**

Particle Release from Fused Filament Fabrication 3D printers: An evaluation of different exposure factors  
*Justin Gorham, Keana C K Scott, Sam Norris*  
*NIST*

**12:30 PM**

Acrylonitrile butadiene styrene (ABS) 3D printer emission-induced in vitro and in vivo toxicity  
*Yong Qian, MT Farcas, AB Stefaniak, W McKinney, AK Knepp, L Bowers, WK Mandler, M Kashon, L Battelli, TA Stueckle, M Orandle, A Winn, SA Friend, SR Jackson, C Qi, DR Hammond, R LeBouf, D Burns, A Ranpara, TA Thomas, J Matheson, V Castranova*  
*National Institute for Occupational Safety and Health*

**12:45 PM**

Laboratory and Field Assessments of Potentially Hazardous Emissions From Additive Manufacturing Processes  
*Aleks Stefaniak, Lauren N Bowers, Alycia K Knepp, Stephen B Martin Jr, Duane R Hammond, Ryan F LeBouf, M Abbas Virji*  
*NIOSH*

**1:00 PM**

Recent 3D Printing Emissions Research at EPA  
*Peter Byrley, Getachew Tedla, M Ariel Geer Wallace, Annie M Jarabek, William K Boyes, Kim Rogers*  
*US Environmental Protection Agency*

12:00 PM – 1:30 PM

T1-C

**Understanding and communicating climate risk**

**12:00 PM**

Can the competing risks of climate change and COVID-19 be reconciled?  
*Rae Zimmerman*  
*New York University*

**12:15 PM**

Changing media reporting on climate change in Japan  
*Midori Aoyagi*  
*National Institute for Environmental Studies*

**12:30 PM**

Risk Science as Narration: Building Pathways to Sustainability  
*Kathleen Locklear*  
*SUNY Oswego*

**12:45 PM**

Debating climate risk management on Twitter: The effect of explanatory depth and tone on judgments of information quality and policy support  
*Sanghamitra Sen, Caitlin Drummond, Lauren Lutzke, Joseph Arvai*  
*University of Michigan, Ann Arbor*

**1:00 PM**

The Influence of Science and Science Translation on the Distribution of Public Viewpoints  
*Mitchell Small, Turner Cotterman, Ahmed Abdulla*  
*Carnegie Mellon*

12:00 PM – 1:30 PM

T1-D

**Symposium: Responsible Innovation of Advanced Materials and Biotechnologies**

**12:00 PM**

Can biotechnology contribute to sustainable agriculture?  
*Artem Anyshchenko*  
*University of Queensland*

**12:15 PM**

Updating Best Practices for Responsible Innovation of Nanotechnology in Food and Agriculture  
*Khara Grieger, Adam Kokotovich, Christopher Cummings, Jennifer Kuzma*  
*North Carolina State University*

**12:30 PM**

Stakeholder Perceptions of Responsible Innovation for GMOs and the Role of Anticipating Risks  
*Andrew Hardwick, Jennifer Kuzma, Christopher Cummings*  
*North Carolina State University*

**12:45 PM**

Evolving governance & regulation of biological risk as emerging technologies mature  
*Tim Trevan*  
*Chrome Biorisk Management LLC*

**1:00 PM**

Unpacking environmental and human health safety: Insights from interviews with nanotechnology researchers on responsible innovation  
*Adam Kokotovich, Maude Cuchiara, Andy Binder, Jennifer Kuzma, Khara Grieger*  
*North Carolina State University*



12:00 PM – 1:30 PM

T1-E

**Assessing and Evaluating Water Quality Risk**

**12:00 PM**

Health risk assessment of drugs used for the treatment of novel coronavirus, COVID-19: Liponavir, ritonavir, and azithromycin

*Minashree Kumari, Arun Kumar  
IIT Delhi*

**12:15 PM**

Identifying Issues in Predicting Exposure Risks of Nanoparticles in Water using the Quantitative Nanostructure-Fate Relationship

*Tanushree Parsai, Arun Kumar  
Indian Institute of Technology Delhi*

**12:30 PM**

How collective expertise based on a multi-criteria decision-support approach can enable sustainable governance of crisis Case study: Modeling of radionuclide dispersion in rivers

*Myriam Merad, Alicia Vidal-Allard, Thierry Doursout, Patrick Boyer, Jean-Michel Metivier, Emilie Navarro, Yann Billarand  
Paris-Dauphine University*

**12:45 PM**

Risk evaluation of accidentally released formaldehyde precursor considering tsunami run-up

*Shogo Hamamoto, Lisa Ito, Nozomu Yoneyama, Akihiro Tokai  
Osaka University*

**1:00 PM**

Risk associated with reuse water from oxidation pond, Timarpur

*MD Mustufa, Patrick Gurian, Arun Kumar  
Indian Institute Of Technology, Delhi*

12:00 PM – 1:30 PM

T1-F

**Security Decision Analysis**

**12:00 PM**

Influencing Factors of Street-level Bureaucrats' Decision-making in Small Probability Risk Events

*Shuang Nie, Bo Fan, Bo Fan, Chuanshen Qin  
SJTU*

**12:15 PM**

Interdependent Infrastructure Analysis for Islands and Military Installations

*Daniel Eisenberg, David Alderson, Jacob Wigal  
Naval Postgraduate School*

**12:30 PM**

The Inaugural Security, Assurance and Trust Projects of the NSF CHEST IUCRC

*John Emmert  
University of Cincinnati*

**12:45 PM**

Estimating nuclear proliferation and security risks associated with the introduction of nuclear power in emerging markets using Bayesian Belief Networks

*Travis Carless, Kenneth Redus, Rachel Steratore  
Carnegie Mellon University*

**1:00 PM**

Enhancing Cybersecurity: Systematic Investigation of Insider Threats Utilizing the AcciMap Framework

*Shorouk Bekir, Maryam Tabibzadeh  
CSUN*

12:00 PM – 1:30 PM

T1-G

**Lightning Session: Understanding energy and natural hazard mitigation with risk science (part 1)**

**12:00 PM**

Are interactive web-tools for the public worth the effort? An experimental study on the Swiss electricity supply scenarios 2035

*Georgios Xexakis, Evelina Trutnevyte  
University of Geneva, Renewable Energy Systems Group*

**12:05 PM**

The Framing and Funding of Opposition to Clean Energy

*Adam Zwickle, Thomas Holt, Douglas Bessette  
Michigan State University*

**12:10 PM**

Does going green pay off? Analyzing oil companies' risk perceptions of the energy transition

*Mikhaila Calice, Julian Mueller-Herbst  
University of Wisconsin-Madison*

**12:15 PM**

Exploring a social gap in utility-scale solar energy

*Jessica Crawford, Douglas Bessette  
Michigan State University*

**12:20 PM**

Managing Tradeoffs in Public Safety Power Shutdowns

*David Alderson, ENS Andrea De Abreu  
Naval Postgraduate School*

**12:25 PM**

Risk Communication: Translating Research into Practice at the US EPA.

*Madeline Beal, Jackie Harwood  
Environmental Protection Agency*

**12:30 PM**

Hazard warnings and evacuation behavior: Study of factors determining resident's response behavior to cyclone warnings in Sundarbans, India

*Manomita Das  
Birla Institute of Technology and Sciences - Pilani, Hyderabad*

**12:35 PM**

An Efficient Approach to Robust, Risk-Informed Levee Design Standards

*David Johnson, Nathan Geldner, Jingya Wang, Andrew Zehr  
Purdue University*

**12:40 PM**

Billion-Dollar Natural Disasters: What Does the Future Look Like?

*Cameron MacKenzie, Charchit Shukla  
Iowa State University*

12:00 PM – 1:30 PM

T1-H

**Economics and Benefits of Risk Reductions**

**12:00 PM**

**Valuing COVID-19 Mortality and Morbidity Risk Reductions**

*Lisa Robinson, James K Hammitt, Michael R Eber  
Harvard TH Chan School of Public Health*

**12:15 PM**

**Eliciting Stated Preferences for Tradeoffs Between National Regulatory Costs and Benefits: Results from Calibration Studies**

*Branden Johnson, Adam M Finkel  
Decision Research*

**12:30 PM**

**Driving Behavior of Adults with Low Vision: Implications for the Benefits of Automated Vehicles.**

*David Good, Shirin Hassan, Kerry Krutilla, Haley Waldkoetter  
Indiana University*

**12:45 PM**

**Does Medicare Part D Extend Lives—Medicare Part D and Mortality**

*Katherine Toran  
Food and Drug Administration*

**1:00 PM**

**Risk vs. Risk at 25: Learning to Manage a Multi-Risk World**

*Jonathan Wiener  
Duke University*

12:00 PM – 1:30 PM

T1-I

**Roundtable: COVID-19 as science-informed risk policy? A transatlantic perspective**

Despite pre-existing plans for responding to infectious disease threats, the speed and extent of the global COVID-19 pandemic took the world by surprise. The pandemic, punctuated by rapidly evolving knowledge and mixed messages, presented a major challenge for policymakers and risk communicators. The level of uncertainty about mortality rates, seasonal dimensions, and policy options, as well as many other crucial variables limited the prospects of developing timely risk assessments that could underpin risk management and risk communication. The difficulty in generating real time evidence, however, did not trigger paralysis. On the contrary, most policy makers on both sides of the Atlantic took swift and unprecedented precautionary measures to counter the pandemic and slow infection rates. Most notably, these included, dramatic “lockdowns” of entire states and nations. New challenges also emerged when policy makers began debating how to best ease such drastic restrictions, which were compounded by concerns about a second or even third wave of infections. At the center of this debate were both proponents and opponents of more precaution. Although many policy makers argued that they “followed the science”, the difficulty in agreeing on even basic questions such as ‘What is the optimal distance to keep when social distancing?’, or ‘Should we mandate face-covering in public?’ reveal a more nuanced reality. In this roundtable, an international panel of experts reflect on how science and evidence was used to inform risk policy and risk communication over the course of the pandemic. More specifically, panelists consider the role of risk analysis science in the management and communication of COVID-19 in specific contexts. Expert panelists will present views from Norway, Sweden, the United Kingdom, and the US to compare policies and practices on both side of the Atlantic. Panelists will focus on lessons learnt and promising practices that can improve future responses.

**Chair:** Ragnar Lofstedt

**Panelists:** Terje Aven, Dominic Balog-Way, Ann Bostrom, Frederic Boudier, Katherine McComas

2:30 PM – 4:00 PM

T2-A

**Symposium: COVID-19: Risk Communication and Social Dynamics of Transmission and Vulnerability #2**

**2:30 PM**

**The blame frame: Predicting the U.S. public’s prosocial response during the coronavirus pandemic**

*Jody CS Wong, Janet Z Yang  
University at Buffalo*

**2:45 PM**

**Longitudinal Panel Survey of Media Exposure, Objective Knowledge, Risk Perceptions, and Risk Management Preferences of Americans Regarding the Novel Coronavirus Outbreak**

*Branden Johnson, Marcus Mayorga  
Decision Research*

**3:00 PM**

**Meatpacking Workers: Communicating Risks of Public Health and Economics**

*Felicia Wu, David Hennessy, Trey Malone, Aleks Schaefer, Lixin Zhang  
Michigan State University*

**3:15 PM**

**Public Support for COVID-19 Responses: Cultural Cognition, Risk Perception, and Emotions**

*Zhuling Liu, Janet Z Yang  
University at Buffalo*

**3:30 PM**

**The Effect of Actively Open-Minded Thinking on Risk Perceptions and Behaviors during the COVID-19 Pandemic in the United States**

*Alex Segre Cohen, Caitlin Drummond, Lauren Lutzke, Joseph Arvai  
University of Southern California*

2:30 PM – 4:00 PM

T2-B

**Symposium: Valuing economic, business, worker, and community health - Are available tools for ethics and decision-making in managing risk sufficient for the future?**

**2:30 PM**

**Methods in valuing tradeoffs in risk decision-making**

*Cristina McLaughlin  
FDA*

**2:45 PM**

**Worker Perspective. Voice and Transferred Risk in the Workplace**

*Mary O’Reilly  
University at Albany School of Public Health and Workplace Health Without Borders-US (WHWB-US)*

**3:00 PM**

**Societal and public policy perspective**

*Fred Boelter  
RHP Risk Management*

**3:15 PM**

**Health as a driver in decision-making in managing risk, and ethics**

*Charles Redinger  
SRA*

**3:30 PM**

**Balancing Risk and Ethics: A Business Perspective**

*Glenn Barbi  
Retired Becton Dickinson and Company*

2:30 PM – 4:00 PM

T2-C

**Symposium: Organizing Decentralized Resilience in Critical Interdependent-Infrastructure Systems and Processes**

**2:30 PM**

Quantifying Factors that Affect Natural Disaster Evacuation Decision-Making

*Chris Kuhlman, Nafisa Halim, Achla Marathe, Sisi Meng, Pallab Mozumder, SS Ravi, Anil Vullikanti*  
*University of Virginia*

**2:45 PM**

Perspectives on the Effects of Pandemic Mitigation and Suppression Measures on Interdependent Economic Sectors

*Joost Santos*  
*GWU*

**3:00 PM**

Network-Based Input-Output Modeling of Disruptions to Critical Infrastructure Systems

*Unal Tatar, Joost Santos, Shital Thekdi*  
*SUNY at Albany*

**3:15 PM**

Utility Service Disruptions and Evacuation Planning for Future Hurricanes

*Pallab Mozumder, Nafisa Halim, Sisi Meng*  
*Florida International University*

2:30 PM – 4:00 PM

T2-D

**Symposium: Evolution in the Development and Application of Quantitative Microbiological Risk Assessments at the Food Safety and Inspection Service**

**2:30 PM**

Application of Risk Assessment Principles and Metrics to Inform Equivalence Decisions

*Mike Williams, Eric Ebel, Berhanu Tameru, Wayne Schlosser, Janell Kause*  
*US Dept of Agriculture*

**2:45 PM**

Fast, Affordable and Insightful – the Value of Quantitative Microbial Risk Assessment in Egg Safety

*Wayne Schlosser, Joanna Zablotzky Kufel, Janell Kause*  
*US Dept of Agriculture*

**3:00 PM**

New Quantitative Risk Assessment for BSE

*Berhanu Tameru, Gurinder Saini, Eric Ebel, Mike Williams, Michelle Catlin, Joanna Zablotzky Kufel, Janell Kause*  
*US Dept of Agriculture*

**3:15 PM**

Can FSIS use quantitative testing data to develop more effective microbiological performance standards for meat and poultry products?

*Eric Ebel, Mike Williams, Neal Golden*  
*US Dept of Agriculture*

2:30 PM – 4:00 PM

T2-E

**Innovative approaches to environmental and climate risk management**

**2:30 PM**

What works? Risk management of institutional innovation in energy regulatory decision-making

*Patricia Larkin*  
*University of Ottawa*

**2:45 PM**

Evolution of Social Vulnerability to Natural Hazards in Chile

*Nikole Guerrero, Bronfman, Castañeda*  
*CIGIDEN/Pontifical Catholic University of Chile*

**3:00 PM**

Local knowledge amongst farming communities on response to water induced hazards – a case study in Xuan Thuy national park

*Lam Nguyen Thi Hong*  
*Environmental Science Institute, Vietnam*  
*Environment Administration*

**3:15 PM**

A Pacific Islands case study: implementing territorial resilience issue

*Charlotte Heinzlef, Neil Davies, Dale Dominey-Howes, Damien Serre*  
*UMR EIO-University of French Polynesia*

**3:30 PM**

A scientific resilience observatory for the Pacific islands and coasts: some results

*damien serre, Charlotte Heinzlef, Bastien Bourlier, Jeremy Jessin, Yoann Lamaury, Raphaëlle Croteau, Franck Taillandier, Corinne Curt, Nathalie Long, Julie Talbot, Jean Fried, Neil Davies, Dale Dominey-Howes*  
*UMR EIO, French Polynesia University*

2:30 PM – 4:00 PM

T2-F

**Security Risk Perception and Decision making**

**2:30 PM**

“We’re being more risk averse” vs. “There’s further risk, it just keeps growing, growing, growing”: Knowledge, sensemaking, decisions and the organizational risk position

*Emma Soane*  
*London School of Economics and Political Science*

**2:45 PM**

An International Comparison of News Coverage of Terrorist Attacks

*Emina Herovic, Kira Zhovnirovskii, Matthew Leichman*  
*University of Maryland*

**3:00 PM**

Numeracy Predicts Perceptions of Risk to Society: An Analysis of Factors that Shape General and Specific Risk Perceptions.

*Madhuri Ramasubramanian, Jinan N Allan, Jinhyo Cho, Adam Feltz, Rocio Garcia-Retamero, Edward T Cokely*  
*The University of Oklahoma*

**3:15 PM**

The Need to Reconcile Concepts that Characterize Systems Withstanding Threats

*Igor Linkov, Benjamin D Trump, Stephanie Galaitsi, Jeffrey Keisler*  
*US Army Corps of Engineers*

**3:30 PM**

Conflicting Values In Security Management: A Multilevel Analysis of Security Measures in the rebuilding of the Government Complex in Norway

*Sissel Jore, Bjørn Ivar Kruke, Odd Einar Olsen*  
*SRA*

2:30 PM – 4:00 PM

T2-G

**Lightning Session: Understanding natural hazard mitigation with risk science (part 2)**

**2:30 PM**

**Gain-loss framing to nudge household mitigation and insurance decisions for natural hazards**

*Richard John, Mengtian Zhao  
University of Southern California*

**2:35 PM**

**Severe weather-related deaths, stress, and incidence of cardiovascular ailments in community-based samples**

*Nina Berlin Rubin, E Alison Holman, Rebecca R Thompson, Dana R Garfin, Roxane C Silver, Gabrielle Wong-Parodi  
Stanford University*

**2:40 PM**

**Framing Risks: A Qualitative Textual Analysis of Severe Winter Weather Forecasts**

*Zoey Rosen  
Colorado State University*

**2:45 PM**

**The Impact of Need for Cognition and Rumination on Sex Differences in Crisis Information Seeking**

*Kenneth Lachlan, Emily Hutter, Christine Gilbert, Patric Spence  
University of Connecticut*

**2:50 PM**

**Influence of political ideology on earthquake preparedness**

*Paola Cordón, Nicolas Bronfman, Paula Repetto  
Pontificia Universidad Católica de Chile*

**2:55 PM**

**Demystifying the murky mid-range of hazard and risk scales**

*Pascal Haegeli, Abby Morgan, Henry Finn, Anne St Clair, Robin Gregory, Karl Klassen  
Simon Fraser University*

**3:00 PM**

**How information presentation and interactivity affect the interpretability of spatial hazard information – Lessons from a study in avalanche safety**

*Katie Fisher, Pascal Haegeli  
Simon Fraser University*

**3:05 PM**

**Making Risk Visible During Disasters: Posting Images on Social Media**

*Keri Stephens, Brett W Robertson, Dhiraj Murthy  
University of Texas*

**3:10 PM**

**Innovative versus traditional fire management: an exploration of fire manager risk preferences**

*Claire Rapp, Robyn Wilson  
Ohio State University*

**3:15 PM**

**Investigating Protective Health Decision-Making in Response to Wildfire Smoke in California**

*Francisca Santana, David JX Gonzalez, Gabrielle Wong-Parodi  
Stanford University*

2:30 PM – 4:00 PM

T2-H

**Roundtable: Systemic Risks**

Systemic risks are characterized by high complexity, multiple uncertainties, major ambiguities and transgressive effects on other systems outside of the system of origin. Due to these characteristics, systemic risks are overextending established risk management and create new, unsolved challenges for policy making in risk assessment and risk governance, as demonstrated by the COVID-19 pandemic. Their negative effects are often pervasive, impacting fields beyond the obvious primary areas of harm. This roundtable session aims for an interdisciplinary understanding of systemic risks to address the challenges of systemic risks for effective governance. Analysis of systemic risks relies on an integrated approach that deploys research instruments and concepts from the technical, natural and social sciences, as well as complexity sciences. Resilience and sustainability are guiding principles for governance of systemic risks. Furthermore, systemic risks require the cooperation and inclusion of those who are directly and indirectly affected by risk management measures and regulatory actions. These discussions will also reflect published articles in a special issue of Risk Analysis (currently in process). The roundtable is proposed to allow for multiple 5 minute thought pieces to stimulate discussion. The roundtable convenes interdisciplinary perspectives as well as researchers and practitioners. Several of the authors of the special issue, Ortwin Renn, Sean Low and Pia-Johanna Schweizer, will serve as presenters at the roundtable with additional contributions by Marie-Valentine Florin, Khara Grieger and Tim Butler.

**Chair:** Pia-Johanna Schweizer

**Panelists:** Marie-Valentine Florin, Khara Grieger, Sean Low, Ortwin Renn, Tim Butler

2:30 PM – 4:00 PM

T2-I

**Individual Impacts of Global Pandemic Risks**

**2:30 PM**

**ZOOM FATIGUE**

*David Berube, Ekaterina Bogomoletc  
NCSU*

**2:45 PM**

**Public opinion & news coverage of COVID-19: Risks & responsibility in U.S. perceptions of the pandemic**

*Emily Howell, Christopher Wirz, Hannah Monroe, Anqi Shao, Luye Bao, Kaiping Chen  
Dept of Life Sciences Communication, University of Wisconsin-Madison*

**3:00 PM**

**How should the cardiovascular and pulmonary risks of COVID-19 be incorporated into the Margin of Safety for US National Ambient Air Quality Standards**

*Bernard Goldstein, Charles N Haas, Drexel University  
Univ Pittsburgh*

**3:15 PM**

**Side effects of COVID-19 epidemic in children: the risk of domestic accidents**

*Elisa Gallo, Silvia Bressan, Francesca Tirelli, Liviana Da Dalt, Dario Gregori  
University of Padova*

**3:30 PM**

**Considering the Impact of COVID-19 on Farmers**

*Margaret Beetstra, Robyn Wilson, Eric Toman  
The Ohio State University*

12:00 PM – 1:30 PM

W1-A

**Symposium: Data and Models for Dose-Response Relationships for SARS-CoV-2**

**12:00 PM**

Assessment of the Dose-Response and its Use for Quantifying Safe Shift Procedures for Healthcare Workers During the COVID-19 Pandemic

*Mark Weir, Madeline Lewis, Jade Mitchell  
The Ohio State University*

**12:15 PM**

Exploratory Modeling of Cumulative Dose Exposure to Determine Impacts on Severity of Outcome for COVID-19

*Amanda Wilson, Mark Weir  
The Ohio State University*

**12:30 PM**

Meta-data uploaded on QMRA Wiki for dose-response assessment of SARS-CoV-2 viral loads documented in human cohorts

*Jade Mitchell, Gwennyth Dunbar, Kaitlyn Hutchins  
SRA*

**12:45 PM**

Human data for time- and dose-dependent severity of SARS-CoV-2

*Gene McClellan, Sarah Schmitt, Jason Rodriguez,  
Peg Coleman  
Coleman Scientific*

12:00 PM – 1:30 PM

W1-B

**Symposium: Comparing climate change and pandemic risk perceptions to inform global risk communication and management**

**12:00 PM**

Perceptions of Pandemic Coronavirus, Climate Change and the Morality and Management of Global Risks

*Ann Bostrom, Gisela Böhm, Robert E O'Connor  
University of Washington*

**12:15 PM**

Coronavirus risk perceptions in Norway

*Charles Ogunbode, Rouven Doran, Gisela Boehm,  
Staale Pallesen  
De Montfort University*

**12:30 PM**

Risk perceptions of climate change and pandemic influenza: A psychometric comparison

*Gisela Böhm, Ann Bostrom, Robert E O'Connor,  
Daniel Hanss, Otto Bodi-Fernandez, Pradipta  
Halder  
University of Bergen (Norway)*

**12:45 PM**

Discussant at Symposium comparing climate change and pandemic risk perceptions

*Robert O'Connor  
The National Science Foundation*

**1:00 PM**

How the Affect Heuristic Contributes to the Social Amplification or Attenuation of Risk Perception

*William Burns  
Decision Research*

12:00 PM – 1:30 PM

W1-C

**Symposium: Infrastructure Outages and Consequence Analysis**

**12:00 PM**

Resilience assessment of power grid following extreme weather events

*Jin-Zhu Yu, Hiba Baroud, Andrea Staid  
Vanderbilt University*

**12:15 PM**

Evaluating Military Installation Operations dependence on Infrastructure using Machine Learning and Stated Preference Elicitation

*Paul Magoulick, Allison Reilly  
University of Maryland / US Navy*

**12:30 PM**

Dynamic Networks for Modeling Uncertain Infrastructure Interdependency: A Case Study on Transportation and Power Systems

*Yu Wang, Hiba Baroud  
Vanderbilt university*

**12:45 PM**

Scenario Creation for Threat-Induced Infrastructure Failures

*Andrea Staid, Benjamin Rachunok, Benjamin  
Emery  
SRA*

**1:00 PM**

Probabilistic Cyber Risk Quantification by Using Bayesian Networks

*Omer Keskin, Unal Tatar  
Old Dominion University*

12:00 PM – 1:30 PM

W1-D

**Lightning Session: Risk Analysis of Advanced Materials and Technologies**

**12:00 PM**

Advancing Adverse Outcome Pathway (AOP) Development for Nanomaterial Risk Assessment and Categorization – Outcomes of an OECD WPMN Project

*James Ede, Jo Anne Shatkin  
SRA*

**12:05 PM**

Examining the role of oxidative stress responses to nanoparticle exposure in bacterial and mammalian cells

*Thelma Ameh, Matthew Gibb, Kusy Zazosa, Evan  
Braswell, Christie Sayes  
Baylor University*

**12:10 PM**

Faith in intelligence design: The interplay of trust and partisanship in shaping attitudes toward AI

*Nicole M Krause, Isabelle Freiling, Christopher D  
Wirz, Shiyu Yang, Todd P Newman, Dominique  
Brossard, Dietram A Scheufele, Michael A Xenos  
University of Wisconsin - Madison*

**12:15 PM**

Designing Communications for AI Recommendations with Uncertain Truth

*Hari Vasudevanallur Subramanian, Casey Canfield,  
Daniel B Shank, Luke Andrews, Cihan Dagli  
Missouri University of Science & Technology*

**12:20 PM**

Risk Perceptions of Urban Solar and Wind Energy Developments

*Amanda Boyd, Alex Kirkpatrick  
Washington State University*

**12:25 PM**

What Do People Know about Artificial Intelligence: A Mental Model Approach

*Chuanshen Qin, Manchi Xu  
Shanghai Jiao Tong University*

12:00 PM – 1:30 PM

W1-D

**Lightning Session: Risk Analysis of Advanced Materials and Technologies**

**12:30 PM**

Disentangling Disinformation in Science in the Attention Economy

*Camille Ryan, John Swarthout  
Bayer Crop Science*

**12:35 PM**

The Spread of False Science: Lexical Concreteness, Proximity, Misinformation Sharing and the Moderating Role of Subjective Knowledge

*Alex Kirkpatrick  
Washington State University*

**12:40 PM**

Puffin: The Automatic Uncertainty Complier

*Nicholas Gray  
University of Liverpool*

**12:45 PM**

Understanding implications of usage of nanoagrochemicals using a risk assessment approach

*Shraddha Shahane, Arun Kumar  
IIT Delhi*

12:00 PM – 1:30 PM

W1-E

**Methods and Tools for Understanding and Managing Environmental Risk**

**12:00 PM**

Insights for developing effective decision support tools for environmental sustainability

*Gabrielle Wong-Parodi, Katharine Mach, Kripa Jagannathan, K Dana Sjoström*

**12:15 PM**

Reviewing the development of a generalizable measure for risk perception

*Hugh Walpole, Robyn Wilson  
The Ohio State University*

**12:30 PM**

National-scale flood risk assessment: Adjoining 100-year flood hazard exposure and social vulnerability maps at the census tract level across Canada

*Liton Chakraborty, Andrea Minano, Jason Thistlethwaite, Daniel Scott, Daniel Henstra, Horatiu Rus  
University of Waterloo*

**12:45 PM**

Updating Environmental Risk Management for the Pandemic: A Legal and Policy Perspective

*Arden Rowell  
University of Illinois at Urbana-Champaign - College of Law*

**1:00 PM**

Re-thinking the principle of consent in US nuclear waste management

*Seth Tuler, Thomas Webler  
Worcester Polytechnic Institute*

12:00 PM – 1:30 PM

W1-F

**Conceptualizing the Future of Risk Analysis in a Post COVID-19 World**

**12:00 PM**

Is Risk Analysis Dead?

*Richard Belzer  
Regulatory Checkbook*

**12:15 PM**

Cumins and goings - The impact of the actions of Public Figures on risk taking behavior of the public

*Ian Hall, Joshua Hall  
University of Northampton*

**12:30 PM**

Relationships between initial COVID-19 risk perceptions and protective health behaviors: A national survey

*Wandi Bruine de Bruin, Daniel Bennett  
University of Southern California*

**12:45 PM**

Developing a dose response model for Ebolavirus

*Kara Dean, Jade Mitchell, Charles Haas  
Michigan State University*

**1:00 PM**

Risk Management with Scenario-Based Priorities for Global Pandemic Testing and Vaccination

*Kelsey Hollenback, Shravan Sreekumar, Thomas L Polmateer, Mark C Manasco, James H Lambert  
University of Virginia*

12:00 PM – 1:30 PM

W1-G

**Modeling and Decision Support for Safety and Security**

**12:00 PM**

A Multi-Player Sequential Game-Theoretic Approach to Study Denuclearization with Incomplete Information

*Xiaojun (Gene) Shan, Jun Zhuang  
University of Houston Clear Lake*

**12:15 PM**

Capability Based Planning for Health Threats

*Gilberto Montibeller, Marcelo Zawadzki  
Loughborough University*

**12:30 PM**

Improving resilience of critical industrial plants by integrating situational awareness systems into overall resilience analysis and monitoring process

*Aleksandar Jovanovic, Marjan Jelic, Bastien Caillard  
EU-VRI/Steinbeis*

**12:45 PM**

Political Risk Management: Scenario Analysis Revisited

*Ghaidaa Hetou  
iStrategic LLC*

12:00 PM – 1:30 PM

W1-H

**Roundtable: The Social Amplification of Risk: Basic Framework Revisited in 2020**

In 1988, researchers at Clark University coordinated with P. Slovic and O.Renn to propose an analytical tool, known as the Social Amplification of Risk Framework (SARF), that sought to interpret the biophysical and social sciences in the assessment of and management of environmental and health risks. Ten years later, N. Pidgeon organized a conference resulting in a book on the subject, entitled the Social Amplification of Risk (Cambridge University Press). Over two decades later, SARF continues to be valuable in addressing many hazards and the subject of a diverse set of publications. In this roundtable, the framework will be examined across a variety of new research and new risk challenges in 2020, for example, vaccines, social media, the US opioid crisis, systemic risks, offshore wind deployments and more. These discussions reflect draft articles that are expected to be published in a special issue of Risk Analysis (currently in process). This roundtable focuses on how SARF is helping to explore risk amplification and attenuation across case studies/themes as well as identify further needed research. This question will be addressed by the roundtable participants with discussion from the audience.

**Chair:** Bonnie Ram

**Panelists:** Robin Cantor, Nick Pidgeon, Pia Johanna Schweizer, Rob Goble, Roger Kasperson

12:00 PM – 1:30 PM

W1-I

**Balancing Risk and Safety in Decision Making**

**12:00 PM**

Applying the SRA Risk Analysis and Management Quality Tests to Cultural Property Risk Analysis

*Robert Waller  
Protect Heritage Corp.*

**12:15 PM**

Systemic review of proximity variable in risk perception studies

*Aistė Balžekienė, José Manuel Echavarren, Audronė Telešienė  
Kaunas university of technology*

**12:30 PM**

Principles for Commercial-Airplane System-Design Safety

*Ted Yellman  
Safety Improvements*

**12:45 PM**

Applying the SRA Risk Analysis and Management Quality Tests to the Boeing 737 MAX Case

*John Lathrop  
Decision Strategies, LLC*

**1:00 PM**

Decision about optimal number of spans in a bridge using principles of Risk Analysis and optimization

*Chandrasekhar Putcha, TD Gunneswara Rao, K Gopi Krishna  
California State University, Fullerton*

2:30 PM – 4:00 PM

W2-A

**Symposium: Inside the War Room: The Real-Time Risk Management of COVID-19**

**2:30 PM**

Lessons Learned From COVID Strategic Support to US Federal and State Agencies and Decision Makers

*Benjamin Trump, Jeffrey Cegan, Emily Wells, Katarzyna Klasa, Todd Bridges, Brandon Lafferty, Melissa Surette, Sue Cibulsky, Chris Cummings, Igor Linkov  
US Army Corps of Engineers*

**2:45 PM**

The multifaceted academic and government response to COVID-19 in Texas

*Jimmy Gollihar, James Musser, Eric Salazar, John Dye, Edward Marcotte, Susan Woodard, Andrew Ellington, George Georgiou, Jason McLellan, Andrew Horton, Dan Boutz, Elizabeth Gardner, Jule Goike, Andre Maranhao, Ankur Annapareddy, Randy Hughes, Rebecca Rensberg, Greg Ippolito, Jason Lavinder, Zivko Nikolov, Anna Battenhouse  
US Army Corps of Engineers*

**3:00 PM**

COVID-19 Response: transforming incomplete data into real-time actionable guidance

*Christopher Cummings, Katarzyna Klasa, Emily McAuliffe Wells  
North Carolina State University*

**3:15 PM**

Analyzing country responses to COVID-19 using the TAPIC governance framework

*Holly Jarman, Scott Greer  
University of Michigan*

**3:30 PM**

At COVID Frontline: Real Time Risk-Based Decision Making in Federal Government

*Igor Linkov  
US Army Corps of Engineers*

2:30 PM – 4:00 PM

W2-B

**Symposium: Big Data, Predictive Analytics and Risk Informed Decision Making in Healthcare System**

**2:30 PM**

An Interdisciplinary Approach to Assess Mental Wellbeing of Communities in Cities Leveraging Statistical Learning

*Sayanti Mukherjee  
University at Buffalo*

**2:45 PM**

A Two-Stage Dynamic Disease Transmission Model Accounting for Behavioral and Epidemiological Heterogeneities in Populations

*Zhiyuan Wei, Zhiyuan Wei, Sayanti Mukherjee  
University at Buffalo, SUNY*

**3:00 PM**

Investigating People's Reactions Towards Government Policies During COVID-19 Using Sentiment Analysis of Twitter Data

*Aishwarya Gupta, Zhiyuan Wei, Sayanti Mukherjee  
State University of New York at Buffalo*

**3:15 PM**

A Robust Data-Driven Framework to Evaluate and Predict County Health Rankings Leveraging Statistical Learning

*Adil Baran Narin, Zhiyuan Wei, Sayanti Mukherjee  
University at Buffalo, State University of New York*

**3:30 PM**

A Bi-Level Scheduling and Allocation of Frontline Healthcare Workers (FHWs) During a Pandemic to Reduce the Work Related Stress

*Prasangsha Ganguly, Sayanti Mukherjee  
University at Buffalo*

2:30 PM – 4:00 PM

W2-C

**Symposium: Societal consequences of infrastructure failures from hazards**

**2:30 PM**

How are Flood Mitigation Efforts Reacting to the Climate-driven Severities of Flooding in the United States?

*Daniel Perrucci, Hiba Baroud  
Vanderbilt University*

**2:45 PM**

Long-term planning of emergency management in coastal communities vulnerable to repetitive flooding

*Zeinab Yahyazadeh Jasour, Allison C Reilly  
University of Maryland at College Park/ Graduate research assistant*

**3:00 PM**

Engineering Resilience and Equitable Resilience

*Benjamin Rachunok, Roshanak Nateghi  
Purdue University*

**3:15 PM**

US Federal Disaster Spending: The Winner and The Losers

*Allison Reilly, Maddy Gaw, AR Siders  
University of Maryland*

**3:30 PM**

Using Carrots Rather Than Sticks: Attempts to Improve Local Government Cybersecurity and Infrastructure Protection Efforts in New York State

*Brian Nussbaum  
University at Albany*

2:30 PM – 4:00 PM

W2-D

**Symposium: Utilizing a systems biology approach to further risk assessment of complex chemical mixtures**

**2:30 PM**

Estimating cumulative exposure and associated health impacts with consumer products – a case study

*Qingyu Meng, Anne-Cooper Doherty  
California Department of Toxic Substances Control*

**2:45 PM**

Accounting for Mixtures in Risk Assessment using Human Environmental Health Data

*Chris Gennings  
Icahn School of Medicine at Mount Sinai*

**3:00 PM**

Improving Risk Evaluation for Mixtures with Systems Biology Data

*Susan Tilton  
Oregon State University*

**3:15 PM**

In vitro transcriptomics for toxicity profiling of airborne emissions and their transformation products from different source sectors in urban areas of Toronto

*Sabina Halappanavar, Narumol Jariyasopit, Dongmei Wu, Andrey Boyadzhiev, Andrew Williams, Tom Harner  
Health Canada*

**3:30 PM**

Exploring Mechanistic Toxicity of Mixtures Using PBPK Modeling and Computational Systems Biology

*Patricia Ruiz, Claude Emond, Eva McLanahan, Shivanjali Joshi-Barr, Moiz Mumtaz  
ATSDR/CDC*

2:30 PM – 4:00 PM

W2-E

**Roundtable: Meeting the Challenges of Applying the SRA Risk Analysis Quality Test, RAQT: Three Case Studies**

The Applied Risk Management Specialty Group has developed the Risk Analysis Quality Test, RAQT, which has been approved by SRA and is posted on the SRA Applied Risk Management Specialty Group website. It is a set of 76 questions, each testing a different aspect of quality of analyses supporting risk management decisions. For example, the first question is "Is the goal of the analysis clearly described?" Categories of questions span framing the analysis, capturing the risk generating process, risk communication, assumptions and scope boundary issues, robustness, resilience, validation, data limitations, capturing and reporting uncertainty, basis of knowledge, stakeholder involvement, and five other categories. Each question is worded to call for an answer of "Yes," "No," or "Not Applicable." A "No" indicates an "Opportunity To Improve." The RAQT is designed to be applied as either a pro-active risk analysis planning tool, or a review and validation tool. The RAQT can be administered via a software tool we are developing that makes answering the questions as easy as possible, and delivers a report at the end summarizing the results. The first topic of this roundtable is to review that software tool and seek improvements in its user friendliness. The second topic is more strategic: How best to apply the RAQT? Three panelists will present 3 ways to apply it: John Lathrop will review his application of the RAQT to the Boeing 737 Max case. Robert Waller will review his application, ranking and screening risks to cultural property. Steven Ackerlund will review his work applying the RAQT to building a climate change risk analysis planning capability in a global environmental consulting firm. Then we'll roll up our thoughts and the audience's thoughts to draw conclusions. One paramount question: One goal of the RAQT process is to create a "Culture of Risk Analysis Quality" where all involved care about, assess, and insist on analysis quality, but how can we make that happen?

**Chair:** John Lathrop

**Panelists:** Ronald Dyer, John Lathrop, Robert Waller, Steve Ackerlund

2:30 PM – 4:00 PM

W2-F

**Environmental Risk Assessment: From the Fruit Fly to Landfills**

**2:30 PM**

Stakeholder engagement for emerging biotechnology risk assessment: A Spotted-wing Drosophila case study

*Adam Kokotovich, S Kathleen Barnhill-Dilling, Johanna Elsensohn, Jason A Delborne, Hannah Burrack  
North Carolina State University*

**2:45 PM**

Assessing ecological risks of microplastics in terrestrial ecosystems

*Jennifer Cronin, Margaret MacDonell  
Argonne National Lab*

**3:00 PM**

Assessing the Susceptibility of Organisms to Adverse Impacts from Environmental Plastics

*Mary Rommer, Tanden Hovey, Justice Wright  
Argonne National Lab*

**3:15 PM**

Exploring the Interactions of Microplastics and Nanoplastics in the Environment

*Tanden Hovey, Margaret MacDonell, Mary Rommer, Jennifer Cronin  
Argonne National Lab*

**3:30 PM**

Risk assessment of a nanoparticle based phytoremediation technology for cadmium (Cd) removal from a landfill site

*Mansi Bakshi, Arun Kumar  
Indian Institute of Technology Delhi*



2:30 PM – 4:00 PM

W2-G

**Forefront issues and tools in micro risk modeling**

**2:30 PM**

A quantitative model for evaluating the risk of Legionnaires' Disease while flushing premise plumbing systems after extended stagnation

Ashley Heida, Kerry Hamilton  
Arizona State University

**2:45 PM**

Use of Quantitative Microbial Risk Assessment as a Tool for Root Cause Analysis of Foodborne Outbreaks

Hao Pang, Amir Mokhtari, Sofia Santillana Farakos, Crystal McKenna, Cecilia Crowley, Vanessa Cranford, April Bowen, Sheena Crutchfield, Asma Madad, Donald Obenhuber, Jane Van Doren  
FDA-CFSAN

**3:00 PM**

Application of artificial neural network on prediction of Salmonella prevalence in broiler during chilling process

Wen Wang, Chase Rainwater, Yanbin Li, Jianmin Zhang, Ming Liao, Hua Yang, Wen Wang  
Zhejiang Academy of Agricultural Sciences

**3:15 PM**

Why pathogens matter for meeting SDG 6: moving from "improved" to "safely managed"

Alexis Mraz, Innocent K Tumwebaze, Shane R McLoughlin, Megan E McCarthy, Nynke Hofstra, Joan B Rose, Heather M Murphy  
The College of New Jersey

**3:30 PM**

Quantifying Legionnaires' disease risks from dental office exposures

Kerry Hamilton, Aditya Kuppravalli, Ashley Heida, Sayalee Joshi, Marc Verhougstraete, Daniel Gerrity  
Arizona State University

2:30 PM – 4:00 PM

W2-H

**Lightning Session: Greater clarity on risk-based decision making and support**

**2:30 PM**

Risk-based Decision Making: Working toward a Standard Definition

Kara Morgan, Crawford, Ashley, Kowalczyk, Barbara  
The Ohio State University

**2:35 PM**

Comparison of the Theory and Practice of Microbiological Water Quality Management in Premise Plumbing

Rajveer Singh, Deepika Chauhan, MD  
Rasheduzzaman, Zhao Yang, Alanna Forgarty, Kerry Hamilton, Patrick Gurian  
Drexel University

**2:40 PM**

Strength of trust in risk managers and cooperation intentions during the COVID-19 pandemic

Hwanseok Song  
Purdue University

**2:45 PM**

Comparison of hemagglutination (HA) inhibition and HA-pseudovirus neutralization titers in relation to protection against influenza in a mouse model

Yin Huang, Zhengshi Lin, Wei Wang, Carol Weiss, Hang Xie, Richard A Forshee  
USFDA

**2:50 PM**

A QMRA model to investigate the adequateness of the ready-to-eat status of beef steaks in the Netherlands

Martijn Bouwknegt, Jurgen Chardon, Eric Evers  
Vion

**2:55 PM**

Media systems and attention cycles: Trends and topics in news coverage of COVID-19 across the U.S., UK, Canada, and China

Christopher Wirz, Anqi Shao, Hannah L Monroe, Emily L Howell, Luye Bao, Kaiping Chen  
UW-Madison

**3:00 PM**

COVID-19 on Social Media: How Health Organizations Communicate and Engage with the Public amid a Pandemic

Shiyu Yang, Andrew Stoiber  
University of Wisconsin-Madison

**3:05 PM**

The Value of Adherence Information during Clinical Pharmaceutical Trials

Emily Grayek, Baruch Fischhoff, Alex Davis, Tamar Krishnamurti  
Carnegie Mellon University

**3:10 PM**

Subject Matter Experts' (SMEs) Views and Results of a Systematic Literature Review on Temperature Required to Control Legionella Growth

MD Rasheduzzaman, Rajveer Singh, Charles N Haas, Patrick L Gurian  
Drexel University

**3:15 PM**

Appropriate Standardization of Risk – A Guessing Game

Johan Ingvarson  
Lund University

2:30 PM – 4:00 PM

W2-I

**Opportunities and Risks in Globalization and International Development**

**2:30 PM**

Risk and resilience framework for accelerating green transportation in the pandemic

Shravan Sreekumar, Timothy L Eddy, Daniel J Andrews, Thomas L Polmateer, Mark C Manasco, James H Lambert  
University of Virginia

**2:45 PM**

Managing Environmental and Social Risks in the Infrastructure Projects

Venkata sai Prabhakara Murty Potharaju  
Kuwait Oil Company

**3:00 PM**

Mitigating socio-ecological risk in small island states through sustainability scenarios for economic restructuring under COVID-19

Kristal Drakes, Vanessa Schweizer  
SRA

**3:15 PM**

A tale of two countries: how oversea Chinese cope with hostility from China and the U.S. during the COVID-19 pandemic

Haoran Chu, Hang Lu, Yanni Ma  
Texas Tech University

**3:30 PM**

Primary healthcare services for disease prevention and treatment among conflict internally displaced populations: A systematic review

Winifred Ekezie  
University of Nottingham, United Kingdom

10:00 AM – 11:30 AM

TH1-A

**Symposium: Building Sustainable Energy Systems under Climate Change**

**10:00 AM**

Characterizing the impact of climate change on household air conditioning use across the United States

*Renee Obringer, Debora Maia Silva, Roshanak Nateghi, Sayanti Mukherjee, Rohini Kumar SESYNC*

**10:15 AM**

Regional load forecasting considering climate and weather effects: A multi-time scale machine learning modeling framework

*Sayanti Mukherjee, Khushbu Rathi, Pranav Mulik University at Buffalo*

**10:30 AM**

The implications of asymmetrical temperature response of peak electricity demand for power reserve margin planning under climate change

*Roshanak Nateghi, Benjamin Rachunok, Debora Maia-Silva, Rohini Kumar Purdue University*

**10:45 AM**

Beyond Air Temperature: Cooling Degree Day projections for different measures of heat stress and the associated consequences to residential energy consumption.

*Debora Maia-Silva, Roshak Nateghi, Rohini Kumar Purdue University*

10:00 AM – 11:30 AM

TH1-B

**Symposium: Integrating equity into resilience assessment**

**10:00 AM**

Place attachment and affect: The case of flood risk in Louisiana

*Jason Holley, Catherine Lambert, Katherine McComas, Natalie Snider, Grace Tucker Cornell University*

**10:15 AM**

Embedding equity into community resilience through data-driven urban planning

*Tom Logan University of Canterbury*

**10:30 AM**

Quantification metrics for resilience and equity

*Jessica Boakye, Paolo Gardoni, Colleen Murphy University of Illinois at Urbana-Champaign*

**10:45 AM**

Towards inclusion of equity considerations in multi-infrastructure restoration

*David Bristow University of Victoria*

**11:00 AM**

Strategies for climate resilience: Harnessing complementarity over time

*Tim Williams, Gunnar Dreßler, Anne Elise Stratton, Birgit Müller University of Michigan*

**11:15 AM**

Community resilience indicators

*Olivia Jensen National University of Singapore*

10:00 AM – 11:30 AM

TH1-C

**Symposium: Emerging risks of micro/nanoplastics: Perspectives from diverse sectors**

**10:00 AM**

Analytical methods for detecting and characterizing micro and nano plastics in the environment

*Souhail Al-Abed, Quinn Birch, Phillip Potter Baylor University*

**10:15 AM**

Sorption of three common nonsteroidal anti-inflammatory drugs (NSAIDs) to microplastics

*Jaclyn Cañas-Carrell, Armando Elizalde-Velazquez, Seenivasan Subbiah, Todd Anderson, Micah Green, Xiaofei Zhao Texas Tech University*

**10:30 AM**

Microplastics within Human Consumables

*Sherri Mason Penn State Behrend*

**10:45 AM**

Microplastics in drinking water: California's path towards assessing risks and developing regulations

*Scott Coffin State Water Resources Control Board*

**11:00 AM**

Silicon Nanomembranes for the Evaluation of Microplastic Entrainment Along a Municipal Water Delivery Route

*James McGrath, Greg Madejski, Dan Ahmad, Wayne Knox, Joseph Madejski, David Rowley, Jonathan Musgrave, Lisa A DeLouise University of Rochester*

10:00 AM – 11:30 AM

TH1-D

**The Role of Infrastructure and Toxins on Health and Perceptions**

**10:00 AM**

Lead Exposure Risks in North Carolina Children Relying on Unregulated Private Drinking Water Wells

*Jacqueline Gibson, Michael Fisher, Allison Clonch, John MacDonald, Philip Cook Indiana University*

**10:15 AM**

Synergistic toxic effects of halophenolic DBPs against human intestinal, liver and neuronal cells

*Jiaqi Liu, Sahar Pradhan, Matthew Gibb, Cody Olson, Christie M Sayes Baylor University*

**10:30 AM**

Troubled waters: Group conflict in depictions and perceptions of nutrient contamination in Wisconsin

*Nicole Krause, Mikhaila Calice University of Wisconsin - Madison*

**10:45 AM**

An analysis of the impacts of the repetitive flooding events on application rates for FEMA Public Assistance grants

*Hamed Ghaedi, Allison Reilly University of Maryland*

10:00 AM – 11:30 AM

TH1-E

**Understanding Views On and Preparation For Hazards and Disasters**

**10:00 AM**

The calm before the storm: the role of preparedness campaigns and effective public weather services in developing resilient and sustainable communities

Gavin D Brown, Ann Largey, Caroline McMullan, Rachael Moore  
Dublin City University

**10:15 AM**

Moving Toward Sustainable Disaster Preparedness: Understanding What Motivates Older Adults to Prepare

Brett Robertson, Keri Stephens  
The University of South Carolina

**10:30 AM**

Community differences in emergency management and preparedness for multi-hazard risks in British Columbia

Alexa Tanner, Stephanie Chang  
UBC

**10:45 AM**

Exploring the Influence of Experience and Sociodemographic Variables on Natural Disaster Preparedness

Javiera Castañeda, Nicolás C Bronfman, Pamela C Cisternas, Paula B Repetto  
Department of Psychology, Pontificia Universidad Católica de Chile, Santiago, Chile

**11:00 AM**

Mapping Nuclear Risk and Benefit Perceptions By U.S. County

Kuhika Gupta, Joseph T Ripberger, Hank C Jenkins-Smith, Carol L Silva, Andrew S Fox  
University of Oklahoma

10:00 AM – 11:30 AM

TH1-F

**Lightning Session: Sustaining our natural resources with risk science**

**10:00 AM**

Media Coverage and Public Perceptions of Threats Impacting Sea Turtle Populations

Bianca Santos, Gabrielle Wong-Parodi, Larry Crowder  
Stanford University

**10:05 AM**

Reefs at Risk: Perceptions of Coral Reef Health and Pro-environmental Behavior among Coastal Users in West Maui, Hawai'i

Francisca Santana, Alana Yurkanin, Ekoru Lindsey, Tiara Stark, Gabrielle Wong-Parodi  
Stanford University

**10:10 AM**

Blaming the politicians? Exploring the effects of aggressive message in water conservation debate

Shupeiyuan, Colin Kuehl  
Northern Illinois University

**10:15 AM**

Understanding regulatory preparedness for promoting sustainable water reuse in India: Comparison with other regulatory agencies

Neha Tyagi, Neha Tyagi, Patrick Gurian, Arun Kumar  
Indian Institute of Technology, Delhi

**10:20 AM**

Machine learning classification models for predicting contamination risks in private water wells: a case study in North Carolina

Javad Roostaei, Jacqueline MacDonald Gibson  
Indiana University Bloomington

**10:25 AM**

Understanding sustainability of use of nanomaterials-containing wastewater and nano-chemicals in agriculture: A risk assessment perspective

Tanushree Parsai, Shraddha Shahane, N Seetha, Arun Kumar  
Indian Institute of Technology Delhi

**10:30 AM**

Modeling nitrification occurrence in premise plumbing

Dienye Tolofari, Patrick Gurian  
Drexel University

**10:35 AM**

Exploring the Potential for Exposure to Microplastics in Groundwater

Sneha Nachimuthu, Marina Slijepcevic, L'Nazia Edwards  
Argonne National Lab

**10:40 AM**

Combining polymer and environmental data to inform responsible innovation for plastics

Christopher Rademacher, James Drayton, Minh Vo, Margaret MacDonell  
Argonne National Lab

**10:45 AM**

Reducing risk or reintroducing risk: Twitter- and survey data analysis on the opinions about the measures taken to reduce Nitrogen emission in the Netherlands.

Nina Lauran  
Radboud University Nijmegen

10:00 AM – 11:30 AM

TH1-G

**Roundtable: Don't let your students grow up to be risk analysts?**

AlFifty years into what could have been the “century of risk analysis,” have we given up trying to make risk analysis a valued discipline in academia, thereby forestalling many of its important contributions to evidence-based policy? Circa 1990, an SRA panel discussion asked “is it time to call risk assessment a discipline?” Then, we discussed the paucity of academic programs, the lack of any credentialing process, etc. Some of the (then-) “old-timers,” who came to the new field from other specialties, clearly were reluctant to see criteria articulated for “what a risk assessor should know.” We had hoped and expected that, 30 years hence, our field would be more respected, in part because we would have trained a new generation of risk analysts who had standing as such in academia. But instead, it seems that many younger specialists cling to their narrow specialties with the same tenacity as the prior generation did. As a result, generalists who consider risk analysis and management their “specialty” are still prone to being homeless, unloved, and depressed. This roundtable asks: “is a first-class risk assessor someone who knows 90% of what a toxicologist, an epidemiologist, an exposure assessor, a statistician, a decision analyst, a regulatory economist, AND an administrative law expert knows?” If this combination of breadth and depth is possible (contrary to the view that no one can know more than about 1/Nth of N specialties), then it follows that the world needs risk analysts along with specialists in its narrower sub-disciplines. Risk analysis has always faced skepticism because of the uncertainties in our estimates, the moral distaste advocates of extreme precaution and extreme libertarianism have for risk/cost balancing, and other factors. But antipathy to multi-disciplinarity, and distrust of scholars who insist on working for solutions to problems they dissect, may doom our field if we don't advocate for it more successfully over the next decade.

**Chair:** Adam Finkel

**Panelists:** Terje Aven, Tony Cox, Alison Cullen, Adam Finkel, Christopher Frey, Jonathan Levy, Igor Linkov, Greg Paoli

10:00 AM – 11:30 AM	10:00 AM – 11:30 AM	12:00 PM – 1:30 PM	12:00 PM – 1:30 PM
<p style="text-align: center;"><i>TH1-H</i></p> <p style="text-align: center;"><b>Decision-Making in Managing Risk: Science, Policy, and Application</b></p> <p><b>10:00 AM</b> Revisiting de minimis principle in view of new perspectives on risk <i>Azadeh Seif Askari</i> <i>Universitetet i Stavanger (UiS)</i></p> <p><b>10:15 AM</b> How clean is clean? Deploying fluorescents and surrogate pathogen to characterize a cleansed home or workplace <i>Frank Pagone, Jacob Persky, Benjamin Heckman, Fred Boelter</i> <i>RHP Risk Management Inc.</i></p> <p><b>10:30 AM</b> On the use of standards and guidelines as a tool to fulfil regulatory requirements <i>Christine Berner Nyvik, Roger Flage, Seth Guikema</i> <i>University of Stavanger</i></p> <p><b>10:45 AM</b> Addressing methodological issues of mapping diverse spatially-based phenomena and constructing holistic risk index <i>Audrone Telesiene, Aiste Balzekiene</i> <i>Kaunas University of Technology</i></p> <p><b>11:00 AM</b> Risk Corridor Trace Analysis for Maritime Routes in the Pandemic <i>Daniel Andrews, Thomas Polmateer, Mark Manasco, Liz Korte, James Lambert</i> <i>University of Virginia</i></p>	<p style="text-align: center;"><i>TH1-I</i></p> <p style="text-align: center;"><b>Strategic Behavior in Times of Crisis: Applications of Decision Analysis and Game Theory</b></p> <p><b>10:00 AM</b> Technology Adoption for Airport Security: Modeling Public Disclosure and Secrecy in an Attacker-defender Game <i>Kyle Hunt, Jun Zhuang</i> <i>University at Buffalo</i></p> <p><b>10:15 AM</b> A Two-Period Game Theoretic Model of Zero-Day Attacks with Stockpiling <i>Kjell Hausken, Kjell Hausken</i> <i>RAND</i></p> <p><b>10:30 AM</b> Debt Crises Between a Country and an International Lender as a Two-Period Game <i>Jonathan Wellburn</i> <i>University of Stavanger</i></p> <p><b>10:45 AM</b> A Methodology to Evaluate the Confidence Level in Enterprise Risk Management (ERM) <i>Henrique Martini Paula</i> <i>Galvani Risk Consulting, LLC</i></p> <p><b>11:00 AM</b> Mode-choice behavioral model for adaptation of freight transportation investments to pandemic conditions <i>Timothy Eddy, Thomas L Polmateer, Mark C Manasco, James H Lambert</i> <i>University of Virginia</i></p>	<p style="text-align: center;"><i>TH2-A</i></p> <p style="text-align: center;"><b>Symposium: Assessing and mitigating risks to critical infrastructure in the United States from COVID-19</b></p> <p><b>12:00 PM</b> Managing Resilience of National Critical Functions Provided by Infrastructure Systems <i>Heather Scott, Eric Rollison</i> <i>National Risk Management Center, CISA, DHS</i></p> <p><b>12:15 PM</b> Assessing Disruptions to National Critical Functions from COVID-19 Effects on United States Infrastructure <i>Benjamin Preston, Andrew Lauland</i> <i>RAND Corporation</i></p> <p><b>12:30 PM</b> Future Directions in Assessment of Infrastructure Resilience <i>Jason Reinhardt</i> <i>Sandia National Laboratory</i></p> <p><b>12:45 PM</b> Assessing and Managing Critical Infrastructure Resilience <i>Henry Willis</i> <i>RAND Corporation</i></p>	<p style="text-align: center;"><i>TH2-B</i></p> <p style="text-align: center;"><b>Chemical Hazard Assessment and Decision Making</b></p> <p><b>12:00 PM</b> A human health risk-based approach to safety assessments of consumer products containing PFAS <i>Shuo Yu, Kun Zhao, Linda Dell, Jason Wilkinson, Imants Reks</i> <i>Ramboll</i></p> <p><b>12:15 PM</b> Development of a PFOS Plasma Depletion Model in Dairy Cattle <i>Mark Powell, John Johnson, Eric Ebel, Emilio Esteban, Sara Lupton, David Smith, Eric Scholljegerdes, Shanna Ivey</i> <i>USDA</i></p> <p><b>12:30 PM</b> Evaluating Potential Impacts to the DoD Mission and the Defense Industrial Base from Emerging National and International Chemical Regulations <i>Andrew Rak, Patricia Underwood, Catherine M Vogel</i> <i>Noblis</i></p> <p><b>12:45 PM</b> Implications of Nonlinearity, Confounding, and Interactions for Estimating Exposure Concentration-Response Functions in Quantitative Risk Analysis <i>Tony Cox</i> <i>Cox Associates</i></p> <p><b>1:00 PM</b> Exploring the role of risk governance structures and stakeholder participation processes for the uptake of New Approach Methodologies in chemical risk assessment and management <i>Rens van der Vegt, Gordon Hickey, Steven Maguire, Doug Crump, Markus Hecker, Niladri Basu</i> <i>McGill University</i></p>

12:00 PM – 1:30 PM

TH2-C

**Understanding Decision-Making and Communicating Risk**

**12:00 PM**

Speak Softly and Carry a Selfie-Stick: Understanding risk in selfie-behaviors in National Parks

*Judith Rosenbaum, Laura N Rickard, Olivia Reese  
University of Maine*

**12:15 PM**

SRA Member Goals for Risk Communication

*John Besley, Pia-Johana Schweizer, Leigh Anne Tiffany  
Michigan State University*

**12:30 PM**

“It’s bigger than us”: Feelings of inevitable risk associated with coastal land loss in southern Louisiana

*Jason Holley, Catherine Lambert\*, Katherine McComas, Natalie Snider, Grace Tucker  
Cornell University*

**12:45 PM**

Stated-Preference estimates of the welfare effects of risk reduction and of economic cost: From de minimis risk (and cost!) through intolerable

*Adam Finkel, Branden B Johnson  
University of Michigan*

**1:00 PM**

Estimating What US Residential Customers are Willing to Pay for Resilience to Large Electricity Outages of Long Duration

*Sunhee Baik, Alexander L Davis, M Granger Morgan  
Lawrence Berkeley National Laboratory*

12:00 PM – 1:30 PM

TH2-D

**Lightning Session: Climate change: uncertainty, perception, and decision-making**

**12:00 PM**

UK public understanding of climate risks and impacts: the effect of covid-19

*Kat Steentjes, Katharine Steentjes, Adam Corner, Nick Pidgeon  
Cardiff University*

**12:05 PM**

Can we have it all? Modelling future scenarios of a dynamic risk environment for coherence between climate adaptation and the Sustainable Development Goals

*Norman Kearney, Anita Lazurko, Jude Kurniawan, Natalya Siddhantakar, Vanessa Schweizer  
University of Waterloo*

**12:10 PM**

What risks are we missing? Addressing uncertainties beyond risk for resilient river basin governance under climate change

*Anita Lazurko  
University of Waterloo*

**12:15 PM**

Integrating climate change vulnerability, risk, and resilience for place-based assessment of socio-ecological systems

*Mariana Cains  
IU*

**12:20 PM**

Climate change actions by experts and the public

*Olivia Jensen  
National University of Singapore*

**12:25 PM**

Communicating efficacy in collective risk issues, and the mediating effects of hope

*Soobin Choi, Hang Lu  
University of Michigan*

**12:30 PM**

Towards integration of community risk management: a comparison of adaptation, sustainability, and resilience planning approaches

*Emily Walpole, Christopher Clavin, Therese McAllister  
National Institute of Standards and Technology (NIST)*

**12:35 PM**

Effects of Political and Economic Equality on Gender Differences in Climate Change Risk Perception

*Fred Traylor  
Rutgers University*

**12:40 PM**

Effects of user characteristics on the interpretation of scenario visualizations for climate change mitigation: A comparison between Germany, Poland, and France

*Georgios Xexakis, Evelina Trutnevyte  
University of Geneva, Renewable Energy Systems group*

**12:45 PM**

Leveraging Polynomial Surrogates for Infrastructure Risk Analysis Under Highly Uncertain Climate Change Projections

*Negin Alemazkoo, Benjamin Rachunok, Daniel R Chavas, Andrea Staid, Arghavan Louhghalam, Roshanak Nateghi, Mazdak Tootkaboni  
University of Virginia*

**12:50 PM**

Environmental Sustainability and Financial Stability: Can Macroprudential Stress Testing Measure and Mitigate Systemic Risks Resulting from Climate Change?

*Mercy DeMenno  
Bosque Advisors*

12:00 PM – 1:30 PM

TH2-E

**Lightning Session: Improved knowledge and methods for risk and decision communication**

**12:00 PM**

Customizing diagnostic medical testing

*Scott Ferson, Alexander Wimbush, Nicholas Gray, Marco De Angelis, Louis Clearkin, Scott Ferson  
University of Liverpool*

**12:05 PM**

Pandemic Consequences: Computer-Supported Analysis of Business Risks and Opportunities

*Jochen Leidner, Timothy Nugent, Stanimir Vichev, Geoffrey Horrell, Josh Oldham, Chris J Bassett, Daniel Lewington, Jingwei Zhang  
Refinitiv and University of Sheffield*

**12:10 PM**

Social amplification and attenuation of COVID-19 risk: The case of Twitter in the United States

*Carrie Clower, Andrew Binder  
North Carolina State University*

**12:15 PM**

Compassionate Goals, Prosocial Emotions and Prosocial Behavior during COVID-19 Pandemic

*Zhiying Yue, David S Lee, Janet Z Yang  
University at Buffalo, State University of New York*

**12:20 PM**

COVID-19 and Vaccine Preferences: How Salience and Partisanship Influence Public Attitudes

*Andrew Fox, Kuhika Gupta, Hank C Jenkins-Smith, Carol L Silva, Joseph T Ripberger, Scott Robinson, Jennifer Ross  
University of Oklahoma*

12:00 PM – 1:30 PM

TH2-E

**Lightning Session: Improved knowledge and methods for risk and decision communication**

**12:25 PM**

Bioengineered foods: Public perceptions of proposed labels

*Cara Cuite, William Hallman  
Rutgers University*

**12:30 PM**

The Modest Effects of Fact Boxes on Cancer Screening

*Michael Eber, Cass R Sunstein, James K Hammitt, Jennifer M Yeh  
Harvard University*

**12:35 PM**

Direct and Indirect Effects of Exposure to Conflicting Media Coverage of Coronavirus Stay-at-Home Orders on Public Adherence and Support

*Christopher Clarke  
George Mason University*

**12:40 PM**

On constructing and “fairness correcting” a classification algorithm for reunification success in child welfare

*Brian Glass, Jordan Purdy  
State of Oregon, Department of Human Services*

**12:45 PM**

Trust, Risk, and Value of Information

*Zachary Collier, Matt Wood  
SRA*

12:00 PM – 1:30 PM

TH2-F

**Roundtable: Communicating Contaminant Specific Risk Information: Who needs to know what? Building contaminant specific toolkits for multiple audiences on PFAS, EtO, and Lead at the US EPA**

In the past year, EPA has undertaken an effort to improve our agency-wide approach to risk communication in our consistency, clarity, and adherence to best practice. As a part of this process, we have sought to develop a series of content-rich multi-media toolkits on contaminants of cross-cutting or emerging concern. While each contaminant has its own unique risk communication issues, we also sought to develop an overarching process to ensure that adherence to best practice and end-result look and feel were similar for each toolkit. Panelists were each leads on working groups dedicated to a single contaminant or oversaw the process of the development of the overarching road map. This presents a case study on translating research into practice for the benefit of the public at the US EPA.

**Chair:** Madeline Beal

**Panelist:** Angela Hackel, Jackie Harwood, Andrea Drinkard, Alison Davis

12:00 PM – 1:30 PM

TH2-G

**Focusing on Workers and Risk Decision-Making**

**12:00 PM**

Measuring attention, working memory, and visual perception to reduce risk of injuries in the construction industry

*Behzad Esmaeili  
GMU*

**12:15 PM**

Temporal behaviors of dependency relationships in human reliability analysis

*Vincent Paglioni, Katrina M Groth  
University of Maryland, College Park*

**12:30 PM**

Firefighter health: A case example of translating epidemiological data for public policy

*Mary Fox, Kelsey Babik, Wendy Shields,  
Thomas Burke  
Johns Hopkins University*

**12:45 PM**

Effect of Cinematic Depictions of Depression in Real Patients

*Aditya Putcha, Scott Ferson, Rhiannon Corcoran, Adam Mannis, Anila Bhagavatula  
University of Liverpool*

12:00 PM – 1:30 PM

TH2-H

**Roundtable: Integrated management of safety and security - Risk analysis as an integrative factor?**

Over the last decade security issues have become a matter of increasing concern in safety critical organizations and industries due to digitalization development and the subsequent growth of cybersecurity risks. For example, an automated system that monitors control and safety functions in a chemical plant may be exposed to cybersecurity threats, which endanger the integrity of obtained data, and safety of the plant. Thus, there is an increasing convergence of safety and security risks that may lead to major accidents. This convergence calls for an integrated management of safety and security. However, experience has shown that this type of integration is difficult to obtain in practice. The roundtable gathers experts from the risk, security and safety fields to discuss the benefits of such an integration, as well as related challenges and problems. We seek to enhance our understanding of what an integrated safety and security management means and what the most suitable instruments for obtaining success are. In particular we will debate how risk analysis with its concepts, principles, approaches and methods can contribute to ensure that focus is placed on the most critical issues while also ensuring cost efficiency. We ask if risk analysis is the key integrative factor, and what could be the other integrative factors.

**Chair:** Marja Ylonen

**Panelists:** Genserik Reniers, Michael Dourson, Sissel Jore

12:00 PM – 1:30 PM

TH2-I

**Roundtable: Restoring science-informed policy post-2020 US Presidential Election**

This Presidential Roundtable will feature comments and discussion from several science-policy experts reflecting on how to rebuild United States government science agencies that protect human and environmental health following four years of the Trump administration. The discussion will focus on resetting the course of the Environmental Protection Agency by restoring the role of science in decision making and policy.

**Chair:** Robyn Wilson

**Panelists:** Dr. Joseph Arvai, Chris Zarba, Dr. Elizabeth “Betsy” Southerland, Gretchen Goldman

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