Conference Program
2020 Annual Meeting

SRA 2020
Risk Science for Sustainability

December 13 - 17
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2020 Council
**President:** Seth Guikema
**President-Elect:** Robyn Wilson
**Secretary:** Amanda Boyd
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**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
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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Herndon, VA USA 20170
+1.703.790.1745; FAX: 703.790.2672
www.SRA.org, SRA@BurkInc.com
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

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

Specialty Group Meetings

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

Wednesday, December 16

9:00-10:00 AM
- Education
- Membership
- Regions
- Students and Young Professionals

Thursday, December 17

1:30 PM – 2:30 PM
Closing Remarks
European Journal of Risk Regulation
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 to read these issues and others.

Interested in purchasing an individual annual subscription for £40/$60? Visit cambridge.org/ejrr/subscribe for more.

Society for Risk Analysis
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

(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

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.

Thank you to our sponsor
GOLD

Life Sciences Communication
UNIVERSITY OF WISCONSIN–MADISON
Decision makers must frequently rely on data or information that is incomplete or inadequate in one way or another. Judgment, often from experts and occasionally from non-experts, then plays a critical role in the interpretation and characterization of those data as well as in the completion of information gaps. But how experts or non-experts are selected and their judgments elicited matters—they can also strongly influence the opinions obtained and the analysis on which they rely.

Several approaches to eliciting judgments have evolved. The workshop will cover topics ranging from recruitment, elicitation protocol design, different elicitation techniques (e.g., individual elicitations, Delphi method, nominal group technique, etc.) to aggregation methods for combining opinions of multiple individuals. The role of judgment elicitation and its limitations, problems, and risks in policy analysis will also be addressed. The workshop will include presentation of two case studies that will include a discussion of the selection process; elicitation protocol development, elicitation technique utilized, and the various issues that arose before, during, and after the elicitation process and the manner in which they were resolved. The class will also include two hands-on exercises where participants will 1) learn about calibration of experts using a mobile application and 2) apply the Delphi and nominal group techniques to examine risk management issues associated with a popular topic.
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 phenomena 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. Wandi Bruine de Bruin
- Hanne van den Berg
<table>
<thead>
<tr>
<th>Time</th>
<th>Symposium</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td><strong>Monday</strong></td>
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<tr>
<td>12:00 PM – 1:30 PM</td>
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<tr>
<td><strong>M1-A</strong></td>
<td>Symposium: Exploring resilience and interdependencies in COVID-19 crisis:</td>
<td>Armin Haas, IASS</td>
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<tr>
<td></td>
<td>risk perception, health, economy, societal impacts and social response</td>
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<tr>
<td>12:00 PM</td>
<td>The Covid-19 Pandemic and the Resilience of the Financial System</td>
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<td>12:15 PM</td>
<td>COVID-19 Pandemic: Societal response and challenges for systemic risk governance</td>
<td>Pia-Johanna Schweizer, IASS</td>
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<tr>
<td>12:30 PM</td>
<td>The Political Impact of COVID-19 Crisis: Cascade Effects and Mutual Outbidding in Imposing Measures of Lockdown and Opening-Up</td>
<td>Jörg Radke, IASS</td>
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<tr>
<td>12:45 PM</td>
<td>Assessing resilience and interconnectedness of infrastructures exposed to COVID-19 by means of resilience indicators</td>
<td>Sasa Jovanovic, IASS</td>
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<tr>
<td>1:00 PM</td>
<td>Corona Crisis: Important findings from perception and behavioral research</td>
<td>Ortwin Renn, IASS</td>
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<tr>
<td>1:15 PM</td>
<td>Building resilience for a post-pandemic world: the Planetary Health narrative</td>
<td>Nicole de Paula, IASS</td>
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<tr>
<td><strong>M1-B</strong></td>
<td>Symposium: The Road to Quantification of Adverse Outcome Pathways for Chemical Risk Assessment</td>
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<td>12:00 PM</td>
<td>Probabilistic prediction of acute toxicity events in warfighters using Bayesian Network Adverse Outcome Pathways (BN-AOPs)</td>
<td>Taylor Rycroft, Al Kennedy, Igor Linkov, USACE ERDC</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>Thyroid Hormone Synthesis Inhibition and Neurodevelopmental Impairment in the Rat: Quantitative Understanding Within the Adverse Outcome Pathway Framework</td>
<td>Iman Hasson, H El-Masni, PA Kasian, J Ford, SJ Degitz, ME Gilbert, USEPA</td>
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<td>12:30 PM</td>
<td>Development, quantification and application of an adverse outcome pathway network of cholestatic liver injury</td>
<td>Vinken Vinken, Vrije Universiteit Brussel</td>
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<td>12:45 PM</td>
<td>Applying the Key Characteristics Approach for Qualitative and Quantitative Evaluation of the Toxicological and Mechanistic Evidence on Benzo[a]Pyrene-Induced Male Reproductive Toxicity</td>
<td>Ingrid Druwe, JA Davis, Jeff Dean, Catherine Gibbons, Jason Lambert, Lucina Lizarraga, Xabier Aruzaga, US EPA NCEA, North Carolina State University</td>
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<tr>
<td><strong>M1-C</strong></td>
<td>Symposium: Sustainable Innovation and Development of Advanced Materials</td>
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<td>12:00 PM</td>
<td>A Definition and Categorization System for Advanced Materials: The Foundation for Risk-Informed Environmental Health and Safety Testing</td>
<td>Giovanni Carrada, RAI</td>
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<tr>
<td>12:15 PM</td>
<td>Closing the loop, establishing the safety and sustainability of municipal waste conversion into a bio-based material for diverse applications</td>
<td>Sarah Mojarad, University of Southern California</td>
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<td>12:30 PM</td>
<td>Risk-screening of hafnia-based piezoelectric materials for responsible development</td>
<td>Brandon McFadden, University of Delaware</td>
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<tr>
<td>12:45 PM</td>
<td>Towards Future Sustainable Digital Data Storage</td>
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<td>1:00 PM</td>
<td>Treating eutrophication with advanced materials: Key considerations for the responsible development of lanthanum-based materials?</td>
<td>Camille Ryan, John Swarthout, Bayer Crop Science</td>
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<tr>
<td><strong>M1-D</strong></td>
<td>Symposium: Critical Thinking and Trust in Science: working towards a ‘new normal’ in risk communication in food and public health</td>
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<tr>
<td>12:00 PM</td>
<td>Don’t believe everything you read on social media! Ways to encourage skepticism in digital discourse</td>
<td>Sarah Mojarad, University of Southern California</td>
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<tr>
<td>12:15 PM</td>
<td>Perceptions About Critical Thinking and Food During COVID-19</td>
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<td>12:30 PM</td>
<td>The power of moral intuitions in innovation narratives</td>
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<td>12:45 PM</td>
<td>Disentangling disinformation in science in the attention economy</td>
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<td>Time</td>
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<td>12:00 PM</td>
<td><strong>M1-E</strong></td>
<td>The Role of Pollution and Technology on Health and Safety Outcomes and Views</td>
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<td><strong>M1-E</strong></td>
<td>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</td>
</tr>
<tr>
<td>12:15 PM</td>
<td><strong>M1-E</strong></td>
<td>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</td>
</tr>
<tr>
<td>12:30 PM</td>
<td><strong>M1-E</strong></td>
<td>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, Elsaith Spence Cardiff University</td>
</tr>
<tr>
<td>12:45 PM</td>
<td><strong>M1-E</strong></td>
<td>Risk Communication—Challenges, Opportunities when Emerging Contaminants are at Issue Jenny Phillips TRC</td>
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<tr>
<td>1:00 PM</td>
<td><strong>M1-E</strong></td>
<td>Wildfires and COVID-19: Risk Perception, Mitigation, and Opportunities for Emerging Technologies given Compound Threats Emily Wells Carnegie Mellon University</td>
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<th>Session</th>
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<tr>
<td>12:00 PM</td>
<td><strong>M1-F</strong></td>
<td>Decision and Risk Management Tools Incorporating Disparate and Critical Information</td>
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<td>1:00 AM</td>
<td><strong>M1-F</strong></td>
<td>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</td>
</tr>
<tr>
<td>12:00 PM</td>
<td><strong>M1-F</strong></td>
<td>Augmented food safety issue detection and investigation system Mez Sanaa ANSES</td>
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<tr>
<td>12:15 PM</td>
<td><strong>M1-F</strong></td>
<td>African swine fever targeting model Noureddine Meraihi, AMir Ardalani Kalantari, Bae Kyun Park, Elie Abi Younes, Loith Mubaslat Canadian Food Inspection Agency</td>
</tr>
<tr>
<td>12:30 PM</td>
<td><strong>M1-F</strong></td>
<td>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</td>
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<tr>
<td>12:45 PM</td>
<td><strong>M1-F</strong></td>
<td>Lies, Damn Lies and Statistics Ian Hall University of Northampton</td>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
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<tr>
<td>12:00 PM</td>
<td><strong>M1-G</strong></td>
<td>Lightning Session: Better understanding risks in the COVID-19 Pandemic</td>
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<tr>
<td>12:00 PM</td>
<td><strong>M1-G</strong></td>
<td>Increase in mortality during the COVID-19 epidemics: direct and indirect impact of the virus on all-causes mortality Dana Gregori, Danila Azzolina, Elisa Gallo, Daniela Ferrante, Corrado Magnani University of Padova</td>
</tr>
<tr>
<td>12:05 PM</td>
<td><strong>M1-G</strong></td>
<td>From your not-so-friendly neighborhood doctor: style, distance and risk communication in the time of COVID-19 Haoan Chu, Shupei Yuan, Sixiao Liu Texas Tech University</td>
</tr>
<tr>
<td>12:10 PM</td>
<td><strong>M1-G</strong></td>
<td>Covid-19, vaccine hesitancy, social AMplification: a systems perspective Rob Goble, Heidi J Larson Clark University</td>
</tr>
<tr>
<td>12:15 PM</td>
<td><strong>M1-G</strong></td>
<td>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</td>
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<td>12:20 PM</td>
<td><strong>M1-G</strong></td>
<td>Public risk perception, behaviors and emotion regulation under major public health emergency Shenming Song, Chen Wang, Dongyuan Zhan Tsinghua University</td>
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<td>12:25 PM</td>
<td><strong>M1-G</strong></td>
<td>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</td>
</tr>
<tr>
<td>12:30 PM</td>
<td><strong>M1-G</strong></td>
<td>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 Warth, Jason Van Allen, Nick Gaylord, Garrett Van-Hooiser Texas Tech University</td>
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<tr>
<td>12:35 PM</td>
<td><strong>M1-G</strong></td>
<td>Reasoning about novel risks: How does scientific reasoning ability relate to behavioral and attitudinal responses to the COVID-19 pandemic? Caitlin Drummond, Alex Segre Cohen, Lauren Lutzke, Joseph Árvai Arizona State University</td>
</tr>
<tr>
<td>12:40 PM</td>
<td><strong>M1-G</strong></td>
<td>Computational fluid dynamics simulations informing risk: implications about viral transmission in school rooms Sharria Haque, Dahe Seong, Mark Weir, Jade Mitchell University of South Carolina</td>
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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

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, nonscience, 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
Chuanhuan 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 Nagoaka, Kuitjp 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, Joe-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
Thara Knight, Bariela Capollari, Unal Tatar
University at Albany

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, Kuhioka 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, Lee Ann 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
Monday

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
Chiyori Ohkubo
Japan EMF Information Center

Algorithm?
Sanja Mrksic Kovacevic, Frederic Bouder, 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
Shupei 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 Kunneman
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

Chinese panic behaviors in earthquakes
Shoji Tsuchida, Guofang Zhai, Toketo Shizuma, Kaoru Urayama, Minoru Kubo, Kaya 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, Shreyaa Guha, Patrick L Gunian
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, Madhun Ramasubramanian, Jinan A Allan, Adam Feltz, Rocia 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 Emmanucl Bouder
UIS

Domestic food risk management and ethical behaviours. Results of an ethnographic study in Northern Italy.
Alice Brambin, 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 Yoko
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, Yanan Yang, Baruch Fischhoff
Carnegie Mellon University

Risks associated with rural broadband: as seen through the lenses of the planning community
Javier Valentín-Sivco, 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
**Monday**

**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
  - Vinicius Oliveira, Vitor Homem de Mello, Maximiliano Rebelo, Manuel Ferreira, Otavio José
  - Universidade Estadual Paulista

- Modeling Hurricane Evacuation Departure Times Using Location Data
  - Valerie Washington, Seth Guikema, Jori Mondisa, Aditi Misra
  - University of Michigan

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

- Evaluation of microbial health risks faced by seasonal migrant farmworkers: A Canadian case study
  - Nadwa Elbodri, Philip J Schmidt, Jenna Hennebry, 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
  - Shradha 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, Shradha Karanth, Abani Pradhan
  - University of Maryland

- Assessment of sustainability and environmental impacts by recycling rare metals for electric vehicle batteries in Japan
  - Tomoya Sakurai, Lisa Ito, Akihiro Tokai
  - Osaka University

- Application of the analytical hierarchy process (AHP) for geo-hazards susceptibility mapping: Urban settlement Marquez De Leon, La Paz., Mexico
  - Joel Hiraclas-Rochin
  - Tecnological 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 do Australia’s biosecurity controls provide?
  - Aaron Dodd, Natalie Stoeckl, John Baumgartner, Tom Kamps
  - 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

**Poster Session: Dose-Response Assessment**

- Chemical-Specific Adjustment Factor (CSAF) for Developmental Toxicity of Perfluorooctanoate (PFOA)
  - Bernard Gadagbui, Michael Dourson, Chijioke Onyema, Patricia McGinnis, Raymond York
  - Toxicology Excellence for Risk Assessment (TERA)

- 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 Przybylo, Yulio Carroll
  - ATSDR

- Bayesian dose-response modeling and benchmark dose calculation for categorical data
  - Xiao Xu, Kan Shao, Guiling 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
Monday

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 Rowat
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 Cape
ToxStrategies

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

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
Madeleine Lewis, Mark Weir
Ohio State University

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

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
Daxia Liu, Zhijie Dong, Domain 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
Aiste Balžekienė, Agnė Budžytė, José Manuel Echavarren, Audronė Telešienė, Eimante Zolubiene
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
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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, Weilang Qiao
Dalian Maritime University

Threat and Risk Modeling for Cybersecurity of Industrial Product
Kenneth Crawther
General Electric

Computational approaches to inform engineering options for recycling plastics
Minh Vo, Aijalon Kilpatrick
Argonne National Lab
Informing Performance Tradeoffs for Responsible Plastics Innovation
Cristina Negri, Margaret MacDonell, Minh Vo, Kurt Picel, Bruce Biver, 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, Prasongscha 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 greenhouse gas emission of buildings in New York city
Arkaprabha Bhattacharya, Mohamadali Marshed, Shahrebabok, Makarand Hathak
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

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Modeling Mitigating measures effect on incidences of COVID 19 Risks
Emma Anyika
The Co-operative University of Kenya

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 through 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, Kong-Yang 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 Olsha, 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
Camane Perry, William Rish, Caroline Ring, Liz Mittal, Mark Harris
Tax 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
Monday

2:30 PM – 4:00 PM
Poster Session: Environmental Exposure Assessment

**POSTER-8**
Health Assessment Statins 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, Takai Akhira, 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

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 Larger, Lauren Koval
SPA

Modeling styrene intrusion pathways into buildings during cured-in-place-pipe (CIPP) installation and its safety evaluation
Yooae Nah, Brandon E Boor, Jonathan H Shannahana, 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

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2:30 PM – 4:00 PM
Poster Session: Uncertainty Assessment and Modeling

**POSTER-9**
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 Cason, 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 Singing
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 Padschavit, Linda Mearns, John Abatzoglou, Seth McGinnis, Melissa Bukovsky, Susan Prichard
University of Washington

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Final Program 15
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<tr>
<th>Time</th>
<th>Title</th>
<th>Panelists</th>
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<tbody>
<tr>
<td>12:00 PM</td>
<td>Communicating scientific uncertainty during a rapidly evolving situation: An examination of the Canadian news media in early days of COVID-19</td>
<td>Michelle Driedger, Gabriela Capurro, Joshua Greenberg, Cindy G Jardine, Jordan Tustin, University of Manitoba</td>
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<tr>
<td>12:15 PM</td>
<td>The COVID-19 Narrative: Risk Communication in the age of pandemic uncertainty</td>
<td>Christopher Cummings, North Carolina State University</td>
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<td>12:30 PM</td>
<td>Flattening the curve for COVID-19 risk information avoidance: The role of norms, attitudes, affect, social dominance orientations and mistrust in scientists</td>
<td>Won Wang, LeeAnn Kohler, Lucy Atkinson, Patrick Jamar, Hayoung Sally Lim, Moody College of Communication at The University of Texas at Austin</td>
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<tr>
<td>12:45 PM</td>
<td>Partisan Media Use and Risk Avoidance Behaviors: Adapting the RISP and TPB to COVID-19</td>
<td>Won-Ki Moon, Lucy Atkinson, Lee Ann Kohler, Chung In Yen, Hyunsang Son, The University of Texas at Austin</td>
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<td>1:00 PM</td>
<td>Reducing infectious disease transmission for travelers visiting friends and relatives through enhanced risk communication</td>
<td>Cindy Jardine, Martha Dow, Satwinder Bains, S Michelle Driedger, Marinel Kniseley, Spencer Huesken, University of the Fraser Valley</td>
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<tr>
<td>1:00 PM</td>
<td>The Influence of Science and Science Translation on the Distribution of Public Viewpoints</td>
<td>Mitchell Small, Turner Cotterman, Ahmed Abdulla, Carnegie Mellon</td>
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<tr>
<td>12:00 PM</td>
<td>NanoPHEAT: Forecasting the exposures and toxic effects of nanomaterials (MWCNT and Ag NPs) as released from real products</td>
<td>Joana Sipe, Melissa Chernick, Jaleesia Amos, Nathan Bossa, William Berger, Keana Scott, Alan J Kennedy, Terey Thomas, David Hinton, Christine Ogilvie-Hendren, Mark R Wiesner, Duke University</td>
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<td>12:15 PM</td>
<td>Particle Release from Fused Filament Fabrication 3D printers: An evaluation of different exposure factors</td>
<td>Justin Gorham, Keana C K Scott, Sam Norris, NIST</td>
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<td>12:45 PM</td>
<td>Debating climate risk management on Twitter: The effect of explanatory depth and tone on judgments of information quality and policy support</td>
<td>Songamitra Sen, Caitlin Drummond, Lauren Luzke, Joseph Arvai, University of Michigan, Ann Arbor</td>
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<td>12:00 PM</td>
<td>Can the competing risks of climate change and COVID-19 be reconciled?</td>
<td>Rae Zimmerman, New York University</td>
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<td>12:15 PM</td>
<td>Changing media reporting on climate change in Japan</td>
<td>Midori Aoyagi, National Institute for Environmental Studies</td>
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<td>12:30 PM</td>
<td>Risk Science as Narration: Building Pathways to Sustainability</td>
<td>Kathleen Locklear, SUNY Oswego</td>
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<tr>
<td>12:45 PM</td>
<td>Updating Best Practices for Responsible Innovation of Nanotechnology in Food and Agriculture</td>
<td>Khara Grieger, Adam Kokotovich, Christopher Cummings, Jennifer Kuzma, North Carolina State University</td>
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<td>12:00 PM</td>
<td>Can biotechnology contribute to sustainable agriculture?</td>
<td>Artem Anyshchenko, University of Queensland</td>
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<td>Unpacking environmental and human health safety: Insights from interviews with nanotechnology researchers on responsible innovation</td>
<td>Adam Kokotovich, Maude Cuchiara, Andy Binder, Jennifer Kuzma, Khara Griefer, North Carolina State University</td>
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<td>12:00 PM – 1:30 PM</td>
<td><strong>T1-E</strong></td>
<td>Assessing and Evaluating Water Quality Risk</td>
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<td>12:00 PM</td>
<td><strong>T1-F</strong></td>
<td>Security Decision Analysis</td>
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<td>12:15 PM</td>
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<td>Interdependent Infrastructure Analysis for Islands and Military Installations</td>
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<td>12:30 PM</td>
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<td>The Inaugural Security, Assurance and Trust Projects of the NSF CHEST IUCRC</td>
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<td>12:45 PM</td>
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<td>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</td>
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<td>Enhancing Cybersecurity: Systematic Investigation of Insider Threats Utilizing the AcciMap Framework Shorouk Bekir, Maryam Tabibzadeh CSUN</td>
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<td>12:00 PM – 1:30 PM</td>
<td><strong>T1-G</strong></td>
<td>Lightning Session: Understanding energy and natural hazard mitigation with risk science (part 1)</td>
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<td>12:10 PM</td>
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<td>Does going green pay off? Analyzing oil companies’ risk perceptions of the energy transition</td>
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<td>Exploring a social gap in utility-scale solar energy</td>
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<td>Managing Tradeoffs in Public Safety Power Shutdowns</td>
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<td><strong>T1-H</strong></td>
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<td>12:35 PM</td>
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<td>An Efficient Approach to Robust, Risk-Informed Levee Design Standards</td>
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<td>1:00 PM</td>
<td>T1-I</td>
<td>Roundtable: COVID-19 as science-informed risk policy? A transatlantic perspective</td>
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### Tuesday

#### 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 Zablotsky 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 Zablotsky 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
  - 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, Rocío García-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**
  - Sissel Jore, Bjørn Ivar Kruse, Odd Einar Olsen
  - SRA
**Tuesday**

### 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 Cordon, 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 addresses 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 Beetsstra, Robyn Wilson, Eric Toman
    - The Ohio State University
<table>
<thead>
<tr>
<th>Time</th>
<th>W1-A</th>
<th>W1-B</th>
<th>W1-C</th>
<th>W1-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 PM – 1:30 PM</td>
<td>Symposium: Data and Models for Dose-Response Relationships for SARS-CoV-2</td>
<td>Symposium: Comparing climate change and pandemic risk perceptions to inform global risk communication and management</td>
<td>Symposium: Infrastructure Outages and Consequence Analysis</td>
<td>Lightning Session: Risk Analysis of Advanced Materials and Technologies</td>
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<tr>
<td>12:00 PM</td>
<td>Assessment of the Dose-Response and its Use for Quantifying Safe Shift Procedures for Healthcare Workers During the COVID-19 Pandemic</td>
<td>Perceptions of Pandemic Coronavirus, Climate Change and the Morality and Management of Global Risks</td>
<td>Resilience assessment of power grid following extreme weather events</td>
<td>Advancing Adverse Outcome Pathway (AOP) Development for Nanomaterial Risk Assessment and Categorization – Outcomes of an OECD WPMN Project</td>
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<tr>
<td>12:15 PM</td>
<td>Exploratory Modeling of Cumulative Dose Exposure to Determine Impacts on Severity of Outcome for COVID-19</td>
<td>Coronavirus risk perceptions in Norway</td>
<td>Evaluating Military Installation Operations dependence on Infrastructure using Machine Learning and Stated Preference Elicitation</td>
<td>Examining the role of oxidative stress responses to nanoparticle exposure in bacterial and mammalian cells</td>
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<td>12:45 PM</td>
<td>Human data for time- and dose-dependent severity of SARS-CoV-2</td>
<td>Discussant at Symposium comparing climate change and pandemic risk perceptions</td>
<td>Scenario Creation for Threat-Induced Infrastructure Failures</td>
<td>Designing Communications for AI Recommendations with Uncertain Truth</td>
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<tr>
<td>1:00 PM</td>
<td>How the Affect Heuristic Contributes to the Social Amplification or Attenuation of Risk Perception</td>
<td>1:00 PM</td>
<td>Probabilistic Cyber Risk Quantification by Using Bayesian Networks</td>
<td>Hari Vasudevanallur Subramanian, Casey Canfield, Daniel B Shank, Luke Andrews, Cihan Dagli</td>
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<td></td>
<td>William Burns</td>
<td>12:00 PM</td>
<td>Omer Keskin, Unal Tatar</td>
<td>Missouri University of Science &amp; Technology</td>
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<td></td>
<td>Decision Research</td>
<td>Resilience assessment of power grid following extreme weather events</td>
<td>12:00 PM</td>
<td>Risk Perceptions of Urban Solar and Wind Energy Developments</td>
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<td>Evaluating Military Installation Operations dependence on Infrastructure using Machine Learning and Stated Preference Elicitation</td>
<td>12:15 PM</td>
<td>Amanda Boyd, Alex Kirpatrick</td>
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<td></td>
<td>Dynamic Networks for Modeling Uncertain Infrastructure Interdependency: A Case Study on Transportation and Power Systems</td>
<td>12:20 PM</td>
<td>Washington State University</td>
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<td>Scenario Creation for Threat-Induced Infrastructure Failures</td>
<td>12:25 PM</td>
<td>What Do People Know about Artificial Intelligence: A Mental Model Approach</td>
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<td>Probabilistic Cyber Risk Quantification by Using Bayesian Networks</td>
<td>12:00 PM</td>
<td>Chuanshen Qin, Manchi Xu</td>
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<td>Omer Keskin, Unal Tatar</td>
<td>Resilience assessment of power grid following extreme weather events</td>
<td>Shanghai Jiao Tong University</td>
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<td>Time</td>
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<tr>
<td>12:00 PM – 1:30 PM</td>
<td><strong>W1-D</strong></td>
<td>Lightning Session: Risk Analysis of Advanced Materials and Technologies</td>
<td>Camille Ryan, John Swarthout, Bayer Crop Science</td>
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<td>12:00 PM – 1:30 PM</td>
<td><strong>W1-E</strong></td>
<td>Methods and Tools for Understanding and Managing Environmental Risk</td>
<td>Gabrielle Wong-Parodi, Katharine Mach, Kripa Jagannathan, K Dana Sjostrom</td>
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<tr>
<td>12:00 PM – 1:30 PM</td>
<td><strong>W1-F</strong></td>
<td>Conceptualizing the Future of Risk Analysis in a Post COVID-19 World</td>
<td>Richard Belzer, Regulatory Checkbook</td>
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<tr>
<td>12:00 PM – 1:30 PM</td>
<td><strong>W1-G</strong></td>
<td>Modeling and Decision Support for Safety and Security</td>
<td>Xiaojun (Gene) Shan, Jun Zhuang, University of Houston Clear Lake</td>
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<td>12:30 PM</td>
<td><strong>W1-D</strong></td>
<td>Disentangling Disinformation in Science in the Attention Economy</td>
<td>Camille Ryan, John Swarthout, Bayer Crop Science</td>
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<td>12:30 PM</td>
<td><strong>W1-E</strong></td>
<td>Reviewing the development of a generalizable measure for risk perception</td>
<td>Hugh Walpole, Robyn Wilson, The Ohio State University</td>
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<td>12:30 PM</td>
<td><strong>W1-F</strong></td>
<td>Relationships between initial COVID-19 risk perceptions and protective health behaviors: A national survey</td>
<td>Wandi Bruine de Bruin, Daniel Bennett, University of Southern California</td>
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<tr>
<td>12:45 PM</td>
<td><strong>W1-D</strong></td>
<td>Understanding implications of usage of nanoagrochemicals using a risk assessment approach</td>
<td>Shraddha Shahane, Arun Kumar, IIT Delhi</td>
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<td>12:45 PM</td>
<td><strong>W1-E</strong></td>
<td>Developing a dose response model for Ebolavirus</td>
<td>Kara Dean, Jade Mitchell, Charles Haas, Michigan State University</td>
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<td>12:45 PM</td>
<td><strong>W1-F</strong></td>
<td>Risk Management with Scenario-Based Priorities for Global Pandemic Testing and Vaccination</td>
<td>Kelsey Hollenback, Shravan Sreekumar, Thomas L Polmateer, Mark C Manasco, James H Lambert, University of Virginia</td>
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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

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<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
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<tbody>
<tr>
<td>12:00 PM</td>
<td><strong>W1-H</strong> Roundtable: The Social Amplification of Risk: Basic Framework Revisited in 2020</td>
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<tr>
<td>12:00 PM</td>
<td><strong>W1-I</strong> Balancing Risk and Safety in Decision Making</td>
<td>Applying the SRA Risk Analysis and Management Quality Tests to Cultural Property Risk Analysis</td>
<td>Robert Waller (Protect Heritage Corp.)</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>Systemic review of proximity variable in risk perception studies</td>
<td>Aiste Balžekienė, José Manuel Echavarren, Audronė Telesienė</td>
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<tr>
<td>12:30 PM</td>
<td>Principles for Commercial-Airplane System-Design Safety</td>
<td>Ted Yellman (Safety Improvements)</td>
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<tr>
<td>12:45 PM</td>
<td>Applying the SRA Risk Analysis and Management Quality Tests to the Boeing 737 MAX Case</td>
<td>John Lathrop (Decision Strategies, LLC)</td>
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<tr>
<td>1:00 PM</td>
<td>Decision about optimal number of spans in a bridge using principles of Risk Analysis and optimization</td>
<td>Chandrasekhar Putcha, TD Gunneswara Rao, K Gopi Krishna</td>
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<tr>
<td>2:30 PM</td>
<td><strong>W2-A</strong> Symposium: Inside the War Room: The Real-Time Risk Management of COVID-19</td>
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<tr>
<td>2:30 PM</td>
<td>Lessons Learned From COVID Strategic Support to US Federal and State Agencies and Decision Makers</td>
<td>Benjamin Trump, Jeffrey Cegan, Emily Wells, Katarzyna Klasa, Todd Bridges, Brandon Lafferty, Melissa Surette, Sue Cibulsky, Chris Cummings, Igor Linkov</td>
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<tr>
<td>3:00 PM</td>
<td>COVID-19 Response: transforming incomplete data into real-time actionable guidance</td>
<td>Christopher Cummings, Katarzyna Klasa, Emily McAuliffe Wells (North Carolina State University)</td>
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<tr>
<td>3:15 PM</td>
<td>Analyzing country responses to COVID-19 using the TAPIC governance framework</td>
<td>Holly Jarman, Scott Greer (University of Michigan)</td>
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<tr>
<td>3:30 PM</td>
<td>At COVID Frontline: Real Time Risk-Based Decision Making in Federal Government</td>
<td>Igor Linkov (US Army Corps of Engineers)</td>
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**Final Program**
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<th>Time</th>
<th>Session</th>
<th>Details</th>
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<tbody>
<tr>
<td>2:30 PM</td>
<td>Symposium: Societal consequences of infrastructure failures from hazards</td>
<td>2:30 PM How are Flood Mitigation Efforts Reacting to the Climate-driven Severe Flooding in the United States? Daniel Perrucci, Hiba Baroud Vanderbilt University</td>
</tr>
<tr>
<td>2:45 PM</td>
<td>Long-term planning of emergency management in coastal communities vulnerable to repetitive flooding</td>
<td>Zeinab Yahyazadeh Jasour, Allison C Reilly University of Maryland at College Park/Graduate research assistant</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>Engineering Resilience and Equitable Resilience</td>
<td>Benjamin Rachunok, Rashanak Nateghi Purdue University</td>
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<tr>
<td>3:15 PM</td>
<td>US Federal Disaster Spending: The Winner and The Losers</td>
<td>Allison Reilly, Maddy Gaw, AR Siders University of Maryland</td>
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<tr>
<td>3:30 PM</td>
<td>Using Carrots Rather Than Sticks: Attempts to Improve Local Government Cybersecurity and Infrastructure Protection Efforts in New York State</td>
<td>Brian Nussbaum University at Albany</td>
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<tr>
<td>2:30 PM</td>
<td>Symposium: Utilizing a systems biology approach to further risk assessment of complex chemical mixtures</td>
<td>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</td>
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<tr>
<td>2:45 PM</td>
<td>Accounting for Mixtures in Risk Assessment using Human Environmental Health Data</td>
<td>Chris Gennings  Ichihai School of Medicine at Mount Sinai</td>
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<tr>
<td>3:00 PM</td>
<td>Improving Risk Evaluation for Mixtures with Systems Biology Data</td>
<td>Susan Tilton Oregon State University</td>
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<tr>
<td>3:15 PM</td>
<td>In vitro transcriptomics for toxicity profiling of airborne emissions and their transformation products from different source sectors in urban areas of Toronto</td>
<td>Sabina Halapanovar, Narumol Jariyasopit, Dongmei Wu, Andrey Boyadzhiev, Andrew Williams, Tomi Harner Health Canada</td>
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<tr>
<td>3:30 PM</td>
<td>Exploring Mechanistic Toxicity of Mixtures Using PBPK Modeling and Computational Systems Biology</td>
<td>Patricia Ruiz, Claude Emond, Eva McLanahan, Shivanjali Joshi-Barr, Moiz Muntaz NIOSH/CDC</td>
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<tr>
<td>2:30 PM</td>
<td>Roundtable: Meeting the Challenges of Applying the SRA Risk Analysis Quality Test, RAQT: Three Case Studies</td>
<td>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 either as 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 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</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>Assessing ecological risks of microplastics in terrestrial ecosystems</td>
<td>Jennifer Cranin, Margaret MacDonell Argonne National Lab</td>
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<tr>
<td>3:15 PM</td>
<td>Exploring the Interactions of Microplastics and Nanoplastics in the Environment</td>
<td>Tanden Hovey, Margaret MacDonell, Mary Rommer, Jennifer Cranin Argonne National Lab</td>
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<tr>
<td>3:30 PM</td>
<td>Risk assessment of a nanoparticle based phytoremediation technology for cadmium (Cd) removal from a landfill site</td>
<td>Mansi Bakshi, Arun Kumar Indian Institute of Technology Delhi</td>
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2:30 PM – 4:00 PM

**W2-G**

**Frontier 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

Haoran Chu, Hang Lu, Yanni Ma
Texas Tech University

3:00 PM

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

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

3:15 PM

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

Alexis Mraz, Mohammad Oweis, Shana R McLoughlin, Megan E McCarthy, Nynke Hofstra, Joan B Rose, Heather Murphey
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 Verhugstroete, Daniel Gerrity
Arizona State University

**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, Kowalcyk, 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 Forgary, 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, Zhengshu Lin, Wei Wang, Carol Weiss, Hang Xe, Richard A Forshee
US FDA

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
Lund University

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 Ba, 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 Hoas, Patrick L Gurian
Drexel University

3:15 PM

Appropriate Standardization of Risk – A Guessing Game

Johan Ingvarson
Lund University

**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

Crystal Drakes, Vanessa Schweizer
SRA

3:15 PM

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

Hooran 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
Thursday

**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

**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

**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 Carías-Carrell, Amanda 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

**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, Mikhail 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
Final Program

Thursday

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 Largen, 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 Cisneros, 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
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TH1-F
Lightning Session: Sustaining our natural resources with risk science

Media Coverage and Public Perceptions of Threats Impacting Sea Turtle Populations
Bianca Santos, Gabrielle Wong-Parodi, Larry Crowder
Stanford University

Reefs at Risk: Perceptions of Coral Reef Health and Pro-environmental Behavior among Coastal Users in West Maui, Hawai’i
Francisco Santanta, Alana Yorkanin, Ekolu Lindsey, Tiara Stark, Gabrielle Wong-Parodi
Stanford University

Blaming the politicians? Exploring the effects of aggressive message in water conservation debate
Shupei Yuan, Colin Kuehl
Northern Illinois University

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

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

Understanding sustainability of use of nanomaterials-containing wastewater and nano-chemicals in agriculture: A risk assessment perspective
Tanushree Parasi, Shraddha Shahane, N Seetha, Arun Kumar
Indian Institute of Technology Delhi

Modeling nitrification occurrence in premise plumbing
Dinye Tolofari, Patrick Gurian
Drexel University

Exploring the Potential for Exposure to Microplastics in Groundwater
Sneha Nochimuthu, Marina Slijepcevic, L’Nazia Edwards
Argonne National Lab

Combining polymer and environmental data to inform responsible innovation for plastics
Christopher Rodemacher, James Drayton, Minh Vo, Margaret MacDonell
Argonne National Lab

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

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 extreme libertarianism have for risk/cost balancing, moral dispraise 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 dissent, 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

TH1-G
Roundtable: Don’t let your students grow up to be risk analysts?
Thursday

10:00 AM – 11:30 AM

TH1-H
Decision-Making in Managing Risk:
Science, Policy, and Application

10:00 AM
Revisiting de minimis principle in view of new
perspectives on risk
Azadeh Seif Askari
Universitetet i Stavanger (UiS)

10:15 AM
How clean is clean? Deploying fluorescents and
surrogate pathogen to characterize a cleansed
home or workplace
Frank Pagone, Jacob Persky, Benjamin Heckman,
Fred Boeller
RHP Risk Management Inc.

10:30 AM
On the use of standards and guidelines as a tool
to fulfill regulatory requirements
Christine Berner Nyvik, Roger Flage, Seth Guikema
University of Stavanger

10:45 AM
Addressing methodological issues of mapping
diverse spatially-based phenomena and
constructing holistic risk index
Audrone Telesiene, Aiste Balzekiene
Kaunas University of Technology

11:00 AM
Risk Corridor Trace Analysis for Maritime Routes
in the Pandemic
Daniel Andrews, Thomas Polmateer, Mark
Manasco, Liz Korte, James Lambert
University of Virginia

10:00 AM – 11:30 AM

TH1-I
Strategic Behavior in Times of
Crisis: Applications of Decision
Analysis and Game Theory

10:00 AM
Technology Adoption for Airport Security:
Modeling Public Disclosure and Secrecy in an
Attacker-defender Game
Kyle Hunt, Jun Zhuang
University at Buffalo

10:15 AM
A Two-Period Game Theoretic Model of
Zero-Day Attacks with Stockpiling
Kjell Hausken, Kjell Hausken
RAND

10:30 AM
Debt Crises Between a Country and an
International Lender as a Two-Period Game
Jonathan Wellburn
University of Stavanger

10:45 AM
A Methodology to Evaluate the Confidence Level
in Enterprise Risk Management (ERM)
Henrique Martini Paula
Galvani Risk Consulting, LLC

11:00 AM
Mode-choice behavioral model for adaptation of
freight transportation investments to pandemic
conditions
Timothy Eddy, Thomas L Polmateer, Mark C
Manasco, James H Lambert
University of Virginia

12:00 PM – 1:30 PM

TH2-A
Symposium: Assessing and mitigating
risks to critical infrastructure in the
United States from COVID-19

12:00 PM
Managing Resilience of National Critical
Functions Provided by Infrastructure Systems
Heather Scott, Eric Rollison
National Risk Management Center, CISA, DHS

12:15 PM
Assessing Disruptions to National Critical
Functions from COVID-19 Effects on United
States Infrastructure
Benjamin Preston, Andrew Lauland
RAND Corporation

12:30 PM
Future Directions in Assessment of
Infrastructure Resilience
Jason Reinhardt
Sandia National Laboratory

12:45 PM
Assessing and Managing Critical Infrastructure
Resilience
Henry Willis
RAND Corporation

12:00 PM – 1:30 PM

TH2-B
Chemical Hazard Assessment
and Decision Making

12:00 PM
A human health risk-based approach to safety
assessments of consumer products containing
PFAS
Shuo Yu, Kun Zhao, Linda Dell, Jason Wilkinson,
Imants Reks
Ramboll

12:15 PM
Development of a PFOS Plasma Depletion
Model in Dairy Cattle
Mark Powell, John Johnson, Eric Ebel, Emilio
Esteban, Sara Lupton, David Smith, Eric
Scholljegerdes, Shanna Ivey
USDA

12:30 PM
Evaluating Potential Impacts to the DoD
Mission and the Defense Industrial Base from
Emerging National and International Chemical
Regulations
Andrew Rk, Patricia Underwood, Catherine M
Vogel
Noblis

12:45 PM
Implications of Nonlinearity, Confounding,
and Interactions for Estimating Exposure
Concentration-Response Functions in
Quantitative Risk Analysis
Tony Cox
Cox Associates

1:00 PM
Exploring the role of risk governance structures
and stakeholder participation processes for
the uptake of New Approach Methodologies in
chemical risk assessment and management
Rens van der Vegt, Gordon Hickey, Steven Maguire,
Doug Crump, Markus Hecker, Niladri Basu
McGill University
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<th>Time</th>
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<td>Sunhee Baik, Alexander L Davis, M Granger Morgan</td>
<td>Lawrence Berkeley National Laboratory</td>
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<td>Willing to Pay for Resilience to Large Electricity Outages of Long Duration</td>
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<td>“It’s bigger than us”: Feelings of inevitable risk associated with</td>
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TH2-E
Lightning Session: Improved knowledge and methods for risk and decision communication

12:25 PM
Bioengineered foods: Public perceptions of proposed labels
Zachary Collier, Matt Wood
Society for Risk Analysis

12:30 PM
The Modest Effects of Fact Boxes on Trust, Risk, and Value of Information: Who needs to know what? Building contaminant specific toolkits for multiple audiences on PFAS, ETO, and Lead at the US EPA
Jennifer M Yeh, Madeline Beal
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
William Hallman, Andrea Drinkard
University of Virginia

12:40 PM
On constructing and “fairness correcting” a classification algorithm for reunification success in child welfare
Jordan Purdy, Angela Hackel
University of Oregon, Department of Human Services

12:45 PM
Trust, Risk, and Value of Information
Zachary Collier, Matt Wood
Society for Risk Analysis

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

12:00 PM – 1:30 PM
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.

Panelists:
- Madeline Beal
- Angela Hackel
- Jackie Harwood
- Kelsey Babik
- Wendyl Shields
- Anila Bhagavatula

TH2-G
Focusing on Workers and Risk Decision-Making

12:00 PM – 1:30 PM
Measuring attention, working memory, and visual perception to reduce risk of injuries in the construction industry
Behzad Esmaeili
George Mason University

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

TH2-H
Roundtable: Integrated management of safety and security - Risk analysis as an integrative factor?

12:00 PM – 1:30 PM
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 what if risk analysis is the key integrative factor, and what could be the other integrative factors.

Panelists:
- Genseric Reniers
- Michael Dourson
- Sissel Jore

TH2-I
Roundtable: Restoring science-informed policy post-2020 US Presidential Election

12:00 PM – 1:30 PM
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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