

Register Online and check out the complete program at [www.sra.org](http://www.sra.org)

Society for Risk Analysis



## 2005 Annual Meeting

*25th Anniversary of SRA*

*Past Present, and Future of Risk Analysis*



December 4-7

Buena Vista Palace Resort & Spa

Orlando, FL

**Preliminary Program &  
Registration Packet**

# Society For Risk Analysis Annual Meeting

## 2005 Preliminary Program and Registration Packet

### Orlando, Florida

The meeting will be located at the Buena Vista Palace Resort in Orlando, FL. The resort is located across from downtown Disney, an area alive with excitement, unique shops, restaurants and entertainment! Explore Downtown Disney® Marketplace, home to the largest Disney character store in the world; Downtown Disney West Side, with its top-notch restaurants, theaters, shows and amusement; and Pleasure Island, a paradise of live performances and nightclubs. The Buena Vista Palace is a Disney property and provides complimentary transportation to all Disney theme parks.

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Again this Year!

Official SRA Golf Tournament!



All levels of play welcome! See page 8 for details.

### SRA Annual Meeting Theme

Our Society is a remarkable association. Its members are scientists and practitioners trained in multiple disciplines who come from around the world. They are employed by government, industry, consulting firms, NGOs, academic institutions, and themselves. They seek one another's company because they face problems requiring such diverse perspectives. As we celebrate our 25th year, it is a good time to focus on our shared past while planning for a common future.

### Missed The Deadline for Abstracts??

You can submit a poster abstract until Friday, October 21, 2005. Use the late submission form at [www.sra.org](http://www.sra.org). Late submissions including late breaking research and works in progress are welcomed.

### Be a Die Hard Risk Analyst for Fun and Profit!

Attend the last session on Wednesday, December 7 (3:30-5:00 PM) and you will be eligible to win a terrific benefit. One attendee will be selected at random from the nine sessions and will receive a full credit toward 2006 Annual Meeting fees. This is at least a \$400 value, and is not available in stores! Everyone else will receive an official SRA designed T-shirt!!

Make your travel plans now to stay for the entire Annual Meeting, and you will go home a winner!

### For Further Information

Please contact SRA Headquarters at:  
1313 Dolley Madison Blvd., Suite 402  
McLean, VA 22101

(703) 790-1745, FAX: (703) 790-2672

Email: [SRA@BurkInc.com](mailto:SRA@BurkInc.com); Website: [www.sra.org](http://www.sra.org)

**Preliminary Program Subject to Change – Go to [www.sra.org](http://www.sra.org) for new updates and a complete listing of sessions, presentations and abstracts!!**

## Meeting Highlights

### Wednesday Round Table Discussions

A variety of round table discussions will be offered this year. They will take place on Wednesday, December 7, from Noon-1:30 pm. Attend the round table of your choice and don't forget to order your lunch on the registration form. The round table choices are as follows:

- *How to get Funding from the National Science Foundation: Myths, Opportunities, and Realities - Chaired by: Robert O'Connor*
- *The Collaborative Large-scale Engineering Analysis Network for Environmental Research (CLEANER) Project Office - Chaired by: Mitchell Small*
- *Criteria (of excellence) for Submission of Abstracts - Chaired by: Gail Charnley,, Kara Morgan, Steve Lewis*
- *Internationalization of SRA- Chaired by: Pertti Hakkinen*
- *Policy Issues in Risk - Chaired by: Jack Fowle*

### Poster Sessions

There will be 2 poster sessions this year. P1 is Monday from 10:00-10:30 AM and 3:00-3:30 PM, P2 is Tuesday from 10:00-10:30 AM and 3:00-3:30 PM. Refreshments will be provided during each session. See the Schedule at a Glance for the topics covered in each session. Posters will be on display all day. Poster presenters will be at their poster from 10-10:30 and 3-3:30 on the day of their session for questions and answers.

### Opportunity to Promote Academic Programs

There will be a formal opportunity at this year's Society for Risk Analysis Annual Meeting for universities and colleges to share information about their educational programs and courses related to risk analysis. These could include graduate or undergraduate programs or courses in risk assessment, risk characterization, risk communication, risk management, or policy relating to risk. Please bring a poster, brochures, or other handouts on your program for display and distribution at the meeting at a to-be-specified location.

## Registration Information



**REGISTER ONLINE:** at [www.sra.org](http://www.sra.org) – Online registration will be available starting September 2

**REGISTER BY FAX:** Fax your completed form with credit card information to (703) 790-2672 (**Purchase orders not accepted for workshops**)



**REGISTER BY MAIL:** Mail your completed form with payment to:

SRA Headquarters  
1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101



*Mail completed registration form with check, purchase order or credit card information. You are considered registered when full payment or purchase order has been received.*

**CANCELLATION POLICY:** All cancellations are subject to a \$50 service charge. Cancellations must be in writing to the SRA Secretariat. Cancellation letters received by November 4 will be refunded total registration fees **minus** the \$50 service charge and will be refunded after the meeting. No refunds will be issued on cancellations received after November 5.

**CONFIRMATIONS:** Confirmation letters will be mailed once payment has been received.

<b>MONDAY</b>	7:15-8:00 AM	New Member Breakfast	5:30-7:00 PM			2nd World Congress Planning Session
	8:00 AM-5:30 PM	Registration				
8:30-10:00 AM		<i>Plenary Session: 25<sup>th</sup> Anniversary of SRA: Past, Present, and Future of SRA and Risk Analysis</i>				
10:00-10:30 AM		Poster Session 1 Topics: Exposure Assessment, Preparedness and Perceptions for Terrorism/Extreme Events				
<b>Events</b>	10:00 AM-4:00 PM	Exhibits Open - Ballroom Foyer				
<b>Sessions</b>	10:30 AM-Noon	<b>IRELAND A</b>	<b>IRELAND B</b>	<b>IRELAND C</b>	<b>SCOTLAND A</b>	
		<b>M1</b> Food-Borne Pathogens in Meat and Cheese	<b>M2</b> Risk-Based Approaches to Terrorism Related Problems	<b>M3 SYM:</b> Assessing and Managing Risks from Introduced Species, Part 1	<b>M4</b> Strategies for Modeling Systems Biology	
<b>Events</b>	Noon-1:30 PM	Luncheon - Distinguished Award Winner				
<b>Sessions</b>	1:30-3:00 PM	<b>M10 SYM:</b> 25 Years of Food Safety Risk Analysis: Has our Food Gotten Safer? Part 1	<b>M11 SYM:</b> Multi-Criteria Decision Analysis, Risk Assessment and Homeland Security Applications, Part 1	<b>M12 SYM:</b> Assessing and Managing Risks from Introduced Species, Part 2	<b>M13 SYM:</b> Recent Insights in Understanding and Expressing Health Risks Posed by Dioxin and Dioxin-Like Chemicals, Part 1	
		3:00-3:30 PM Poster Session 1 Topics: Exposure Assessment, Preparedness and Perceptions for Terrorism/Extreme Events				
	3:30-5:00 PM	<b>M19 SYM:</b> 25 Years of Food Safety Risk Analysis: Has our Food Gotten Safer? Part 2	<b>M20 SYM:</b> Multi-Criteria Decision Analysis, Risk Assessment and Homeland Security Applications, Part 2	<b>M21</b> Global Applications of Ecological Risk Assessment	<b>M22 SYM:</b> Recent Insights in Understanding and Expressing Health Risks Posed by Dioxin and Dioxin-Like Chemicals, Part 2	
<b>Specialty Group Meetings</b>	<b>SPECIALTY GROUP MEETINGS/MIXERS – ROOMS TO BE DETERMINED</b>					
	AM					
	PM					

*Authors will be at their poster for questions and answers during the Poster Sessions. Posters will be located in the Ballroom Foyer.*

<b>MONDAY</b>	7:15-8:00 AM	New Member Breakfast	5:30-7:00 PM	2nd World Congress Planning Session	<b>KEY</b> SYM = Symposium PP = Poster Platform
	8:00 AM-5:30 PM	Registration			
	8:30-10:00 AM	<i>Plenary Session: 25<sup>th</sup> Anniversary of SRA: Past, Present, and Future of SRA and Risk Analysis</i>			
	10:00-10:30 AM	Poster Session 1 Topics: Exposure Assessment, Preparedness and Perceptions for Terrorism/Extreme Events			
<b>Events</b>	10:00 AM-4:00 PM	Exhibits Open - Ballroom Foyer			
	<b>SCOTLAND B</b>	<b>SCOTLAND C</b>	<b>EMERALD</b>	<b>DIAMOND</b>	<b>SAPPHIRE</b>
	<b>M5 PP:</b> Risk Management: Tools, Techniques and Emerging Topics	<b>M6 SYM:</b> Data Integration & Weight of Evidence in Risk Assessment	<b>M7</b> Factors Influencing Risk Perception	<b>M8</b> Analytical Tools for Engineering Systems	<b>M9 SYM:</b> Framing the Risk Management Issues for Policy Development of Nanomaterials and Nanotechnology: Regulatory vs. Voluntary Approaches, Part 1
	<b>Noon-1:30 PM</b>	<b>Luncheon - Distinguished Award Winner</b>			
	<b>M14</b> Inhalation Exposure	<b>M15</b> Issues in Infrastructure	<b>M16 SYM:</b> Past, Present & Future of Risk Communication, Part 1	<b>M17</b> Macroeconomic Applications in Risk Analysis	<b>M18 SYM:</b> Framing the Risk Management Issues for Policy Development of Nanomaterials and Nanotechnology: Regulatory vs. Voluntary Approaches, Part 2
	<b>3:00-3:30 PM</b>	<b>Poster Session 1 Topics: Exposure Assessment, Preparedness and Perceptions for Terrorism/Extreme Events</b>			
	<b>M23 SYM:</b> Indoor Environmental Exposures: Residential and Occupational Risks	<b>M24 SYM:</b> The Status of Data Utility in Health Risk Assessment and Decision Making: A Multi-disciplinary Review	<b>M25 SYM:</b> Past, Present & Future of Risk Communication, Part 2	<b>M26</b> Risk and Benefit Analyses	<b>M27 SYM:</b> Risk Analysis & Nanotechnology: How Well Does the Current Paradigm Meet the Need?
	<b>SPECIALTY GROUP MEETINGS/MIXERS – ROOMS TO BE DETERMINED</b>				<b>Don't forget the Wednesday afternoon lottery. You gotta stay to win!!</b>
	<b>AM</b>				
	<b>PM</b>				

<b>TUESDAY</b>	7:00-8:00 AM	Chapters and Sections Breakfast	7:00-8:00 AM	Specialty Group Chairs Breakfast	
	8:00 AM-5:30 PM	Registration	7:30-8:30 AM	Grad Student Breakfast	
<b>Events</b>	10:00 AM-4:00 PM	Exhibits Open - Ballroom Foyer			
<b>Sessions</b>		<b>IRELAND A</b>	<b>IRELAND B</b>	<b>IRELAND C</b>	<b>SCOTLAND A</b>
	8:30-10:00 AM	<b>T1 SYM:</b> Assessment of Human Exposures and Health Risks from Consumption of Toxicants in Fish, Pt. I	<b>T2 PP:</b> Biomonitoring I	<b>T3</b> Transportation Systems Risk	<b>T4 SYM:</b> A Chemical Mixtures Risk Assessment Approach for Four Organotin Plastic Stabilizers: Integration..., Part 1
	10:00-10:30 AM	<b>Poster Session 2 Topic: Exposure Assessment</b>			
	10:30 AM-Noon	<b>T10 SYM:</b> Assessment of Human Exposures and Health Risks from Consumption of Toxicants in Fish, Part 2	<b>T11 PP:</b> Biomonitoring II: Probabilistic Risk Assessment Modeling	<b>T12</b> Children's Health and Regulation	<b>T13 SYM:</b> A Chemical Mixtures Risk Assessment Approach for Four Organotin Plastic Stabilizers: Integration..., Part 2
<b>Events</b>	10:00-10:30 AM	<b>Luncheon - <i>Speaker TBD</i></b>			
<b>Sessions</b>	1:30-3:00 PM	<b>T19 SYM:</b> Acrylamide in Food: The Roles of Laboratory Rodents, the Press, and Warning Labels in Risk Analysis	<b>T20 PP:</b> National and International Approaches to Risk Management Issues	<b>T21 SYM:</b> Florida Ecosystem: Case Studies and Relevance for Risk Analyses	<b>T22 SYM:</b> Issues from Recent Chemical Risk Assessments of Ethylene Oxide, Perchloroethylene and Trichloroethylene
	3:00-3:30 PM	<b>Poster Session 2 Topic: Exposure Assessment</b>			
	3:30-5:00 PM	<b>T28 SYM:</b> The Risk of Avoiding Food Risks	<b>T29</b> A Worm's Eye View of Risk Analysis: Soil Gas and Vapor Intrusion	<b>T30 SYM:</b> Applications of Background Data in Ecological Risk Assessment	<b>T31 SYM PP:</b> Sensitivity Analysis and Refinements for the CIIT Two-Stage Model of Formaldehyde Carcinogenicity in the Rat
<b>Specialty Group Meetings</b>		<b>SPECIALTY GROUP MEETINGS/MIXERS – ROOMS TO BE DETERMINED</b>			
		AM			
		PM			

**KEY**  
 SYM = Symposium  
 PP = Poster Platform

<b>TUESDAY</b>	7:00-8:00 AM	Chapters and Sections Breakfast	7:00-8:00 AM	Specialty Group Chairs Breakfast
	8:00 AM-5:30 PM	Registration	7:30-8:30 AM	Grad Student Breakfast

<b>Events</b>	10:00 AM-4:00 PM	Exhibits Open - Ballroom Foyer
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<b>SCOTLAND B</b>	<b>SCOTLAND C</b>	<b>EMERALD</b>	<b>DIAMOND</b>	<b>SAPPHIRE</b>
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<b>T5 SYM PP:</b> Anchitka Island Symposium	<b>T6 SYM:</b> The Role of Risk Analysis in the Translation, Provision, Communication, and Perception of Complex Medical Information	<b>T7</b> Understanding Trust Issues	<b>T8</b> Outdoor Air Quality Modeling and Analysis	<b>T9 SYM:</b> Report and Recommendations of the Recent Workshop on Probabilistic Risk Assessment..., Part 1
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<b>10:00-10:30 AM</b>	<b>Poster Session 2 Topic: Exposure Assessment</b>			
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<b>T14 PP:</b> Risk Communication/ Perception	<b>T15 SYM:</b> Environmental Security in Harbors and Coastal Areas: Management Using Comparative Risk Assessment...	<b>T16</b> Media and Internet as a Source of Risk Information	<b>T17</b> To Be Announced	<b>T18 SYM:</b> Report and Recommendations of the Recent Workshop on Probabilistic Risk Assessment ..., Part 2
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<b>Noon-1:30 PM</b>	<b>Luncheon - <i>Speaker TBD</i></b>			
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<b>T23 PP:</b> Risk Communication Poster Panel	<b>T24 SYM:</b> Risk Assessment of Cyanobacterial Toxins in Drinking and Recreational Water	<b>T25 SYM:</b> Organizational Contexts of Risk Communication	<b>T26</b> Computational Methods	<b>T27 SYM:</b> Advancing the Science and Practice of Risk Assessment through Peer Consultation
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<b>3:00-3:30 PM</b>	<b>Poster Session 2 Topic: Exposure Assessment</b>			
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<b>T32</b> Selected Topics in Risk, Science and Law	<b>T33 SYM:</b> Software Tools for Risk-Based Decision Making and Scenario Planning	<b>T34</b> Perceptions of Technologies	<b>T35</b> Economics of Valuation Sapphire	<b>T36 SYM:</b> Risk Assessment at FDA: Applications for Informing Science-based Decisions
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<b>SPECIALTY GROUP MEETINGS – ROOMS TO BE DETERMINED</b>			
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<b>AM</b>		<i>Authors will be at their poster for questions and answers during the Poster Sessions. Posters will be located in the Ballroom Foyer.</i>	<b>Don't forget the Wednesday afternoon lottery. You gotta stay to win!!</b>
<b>PM</b>			

<b>WEDNESDAY</b>	8:00 AM-5:00 PM	Registration	8 AM SRA Annual Business Meeting		
	8:30-10:00 AM	<i>Plenary Session: Global Opportunities for Risk Analysis: International Case Studies</i>			
	10:00-10:30 AM	Poster Session 3 Topics: Regulatory Policy & Decision Making, Dose Response, Ecological & Environmental Risk			
<b>Events</b>	10:00 AM-Noon	Exhibits Open - Ballroom Foyer			
<b>Sessions</b>	10:30 AM-Noon	<b>IRELAND A</b>	<b>IRELAND B</b>	<b>IRELAND C</b>	<b>SCOTLAND A</b>
		W1 Food Safety Risk Assessment: Emerging Techniques and Issues	W2 Homeland Security Threats and Public Response	W3 Landscape and Watershed Scale Decision Analysis and Ecological Risk Assessment	W4 SYM: Acute Health Risk Assessment: Case Studies and Methodological Issues
<b>Round Tables</b>	Noon-1:30 PM	<p style="text-align: center;"><b>Order a box lunch! See the registration form.</b></p> <ul style="list-style-type: none"> <li><i>How to get Funding from the National Science Foundation: Myths, Opportunities, and Realities - Chaired by: R. O'Connor</i></li> <li><i>Policy Issues in Risk - Chaired by: Jack Fowle</i></li> </ul>			
<b>Sessions</b>	1:30-3:00 PM	W10 SYM: Risk Assessment for Biological Stressors: Past Present, and Future, Part 1	W11 SYM: Risk Analysis and Border Security	W12 Ecological Exposure Assessment	W13 Improving Dose-Response Estimates
	3:30-5:00 PM	<i>Plan on staying for these sessions and you win a T-shirt! You may even win FREE REGISTRATION!</i>			
	3:30-5:00 PM	W19 SYM: Risk Assessment for Biological Stressors: Past Present, and Future, Part 2	W20 SYM: Multidisciplinary Risk Analysis for Homeland Security	W21 Comparative Risk & Innovative Use of Risk Assessment	W22 SYM: Sources of Variation in Toxicological Studies and Their Effects on Precision of Results

<b>WEDNESDAY</b>	8:00 AM-5:00 PM	Registration	8 AM SRA Annual Business Meeting		
	8:30-10:00 AM	<i>Plenary Session: Global Opportunities for Risk Analysis: International Case Studies</i>			
	10:00-10:30 AM	Poster Session 3 Topics: Regulatory Policy & Decision Making, Dose Response, Ecological & Environmental Risk			
<b>Events</b>	10:00 AM-Noon	Exhibits Open - Ballroom Foyer			
	<b>SCOTLAND B</b>	<b>SCOTLAND C</b>	<b>EMERALD</b>	<b>DIAMOND</b>	<b>SAPPHIRE</b>
	<b>W5 PP:</b> Approaches for Addressing Mode of Action and Life-Stage	<b>W6</b> Disasters!	<b>W18 SYM:</b> Barriers and Bridges for Integrating Science and Risk Analysis into Public Policy	<b>W8</b> Community and Personal Exposure	<b>W9 SYM:</b> Evidence Based Decision-Making in Europe and US: Regulatory Impact Analysis Practices and Stakeholder Response
	<ul style="list-style-type: none"> <li><i>The Collaborative Large-scale Engineering Analysis Network for Environmental Research (CLEANER) Project Office - Chaired by: M. Small</i></li> <li><i>Criteria (of excellence) for Submission of Abstracts - Chaired by: G.I Charnley,, K. Morgan, S. Lewis</i></li> <li><i>Internationalization of SRA - Chaired by: P. Hakkinen</i></li> </ul>				
	<b>W14 SYM:</b> Mode of Action as a Key to EPA's 2005 Cancer Guidelines	<b>W15 SYM:</b> Expert Elicitation, Peer Review, and Judgement: The Role of Scientists in Public Policy, Part 1	<b>W16</b> Risk Perceptions of Health Issues	<b>W17</b> Drinking Water	<b>W7 SYM:</b> Risk as Behaviour: Connecting the Individual with the Social
<b>3:30-5:00 PM</b>	<i>These are the Lottery Sessions. Plan on staying for these sessions and you win a T-shirt! You may even win FREE REGISTRATION!</i>				
	<b>W23 SYM:</b> Examples and Challenges to Understanding the Mutagenic Mode of Action in EPA's New Supplemental Guidance for Assessing Cancer Risks from Early Life Exposures	<b>W24 SYM:</b> Expert Elicitation, Peer Review, and Judgement: The Role of Scientists in Public Policy, Part 2	<b>W25</b> Communicating About Uncertainty	<b>W26 SYM:</b> Informing Risk/Benefit Decisions: Consumption of Seafood	

**W27** To Be Announced

## Registration Hours

Sunday, December 4 .....	4-7 PM
Monday, December 5 .....	8 AM-5:30 PM
Tuesday, December 6 .....	8 AM-5:30 PM
Wednesday, December 7 .....	8 AM-5 PM

## Conference Events

### SRA Council Meetings

Sunday, 12/4, 1–5 PM and Tuesday, 12/6, 7–9 PM

### SRA Welcome Reception – (Cash Bar)

Sunday, 12/4 – 5:30–7:00 PM

### Luncheons (Dietary Restrictions – Notify Registration Personnel)

Monday and Tuesday luncheons are included in full registration.

Wednesday box lunches will be available for purchase. **Please order on registration form.**

### Second World Congress Planning Session

Monday, 12/5 – 5:30–7:00 PM

Meeting participants with an interest in the on-going preparations for the Second World Congress on Risk are invited to attend a special planning session on Monday evening to be chaired by Robin Cantor. SRA plans to hold the Second World Congress in 2008, and participants in this planning session will be asked to share their suggestions for potential co-sponsors, marketing, and program design.

### Second Annual SRA Golf Tournament (All Levels of Play Welcome)

**Location:** Falcon's Fire Golf Club **Date:** Sunday, 12/4, 8:45 am

**Cost:** \$80 pre-registration (before 11/5) \$100 late registration (after 11/5)

**(cost includes transportation to & from course, range balls, golf cart with GPS, 18 holes)**

## Exhibition & Books on Display – Ballroom Foyer

December 5-6	9:45 AM–4:00 PM
December 7	9:45 AM–Noon

At the SRA exhibition, attendees have a first-hand opportunity to examine, talk about, and learn from the products and services on display.

To request a booth at the SRA exhibition or information about displaying a book on our publications table, contact Lori Strong or Sue Burk at SRA Headquarters, (703) 790-1745, email: SRA@BurkInc.com or go to [www.sra.org](http://www.sra.org) and download the exhibit information.

## Hotel Reservations

The SRA Annual Meeting will be held at the Buena Vista Palace Resort and Spa (<http://www.wyndhamevents.com/palace/05sfra.htm>), 1900 Buena Vista Drive, Lake Buena Vista, FL 32830-2206. For reservations call (407) 827-3333, or 1-800-WYNDHAM (996-3426), fax, (407) 827-3472, or go to the SRA website and follow the link for online reservations (<http://www.wyndhamevents.com/palace/05sfra.htm>). Rates for this meeting are \$139 Single/Double and are available three days prior and after the meeting dates of December 4-7, 2005, subject to availability. SRA has reserved a block of rooms at the meeting rate. Once this block of rooms is sold out, rooms may be available at the prevailing rate. Reserve your room early. The cut off for this rate is **November 4, 2005** or until the SRA room block is sold out. Be sure to mention the Society for Risk Analysis to receive the special Meeting rate of \$139 Single/Double. **Remember the cut off for this rate is November 4, 2005 or until the SRA room block is sold out.**

If you drive to the SRA Annual Meeting, you may park at the Buena Vista Palace Resort and Spa. There is complimentary self parking; valet rates are \$11 per day and include in/out service.

## AVIS Car Rental - Special Rates

Special discounted rates have been arranged with Avis in Orlando available from November 27, 2005 - December 14, 2005. Should a lower qualifying rate become available at the time of booking, Avis is pleased to offer a 5% discount off the lower qualifying rate or the meeting rate, whichever is lowest. The attendee must use the assigned Meeting Avis Discount Number and meet Avis rate requirements to receive the discount. (Rate discounts are available at all corporate and participating licensee locations.)

To book a car, call Avis at 1-800-331-1600 and use AWD code **J901109**. Online car registration will be available as well. Check the SRA meetings website ([www.SRA.org](http://www.SRA.org)) for updates. Note that all fees quoted include unlimited free miles.

## Job Hunting

Let's face it, everyone is looking for a job at one time or another. The Annual Meeting can be a place to connect with potential employers without risk to your present job, even if your boss is attending the meeting. You can send in a "blind" résumé or c.v to SRA.org using the submission form. Provide your name and contact information on the submission form. Then submit a "sanitized" résumé without contact or other identifying information. SRA will assign your résumé a number.

Potential employers will be able to look through the file of "sanitized" résumés, which will include your "résumé number." If an interested employer wants to meet with you, the employer will post a message for you using your "résumé number." The note might say "résumé numbers 12, 17, and 56 please leave your complete résumé at the hotel front desk to the attention of D.A. Smith, One in a Million Consulting Firm." Or "Dale Evans University would like to interview résumés 19 and 23, please contact J.D. Jones cell phone # to set up an appointment during the meeting."

For a résumé form or questions, contact:

Mike Johnson, SRA Headquarters at [MJohnson@BurkInc.com](mailto:MJohnson@BurkInc.com)

The résumé form is also available at [www.sra.org](http://www.sra.org) in the meetings section. These forms must be submitted no later than **November 4, 2005**. Once these forms are received, a résumé number will be issued. By November 18, 2005, a photocopy of side two (with your résumé number) will be sent back to you. Please remember your résumé number. A photocopy of side one will be posted at the meeting. The original résumé form will be kept in a book, strictly confidential, for six months after the meeting and then destroyed.

## Workshops – Sunday, December 4

Full Day: 8:00AM-5:00PM

### **WK1 Recommended Practice Regarding Selection, Application and Interpretation of Sensitivity Analysis Methods Applied to Exposure or Risk Assessment Models**

**Amirhossein Mokhtari/North Carolina State University, [amirh357@yahoo.com](mailto:amirh357@yahoo.com)**

**Pre-Reg: \$295, Onsite: \$355**

When should you perform sensitivity analysis? How do you prepare a model to facilitate sensitivity analysis? What are key considerations in the development of scenarios that are the basis for sensitivity analysis? What are some typical sensitivity analysis methods and how can you select among them? How should particular sensitivity analysis methods be applied? How should the results of sensitivity analysis be presented and interpreted? How are the methods applied to exposure or risk assessment model for identifying susceptible subpopulation and important pathways? This workshop will answer these questions. The methods and case studies that will be presented in this workshop are based upon several years of research at NC State University regarding transferring, applying, and adapting sensitivity analysis methods developed in other disciplines (e.g. complex engineering systems) to quantitative exposure and risk assessment models. One of the outcomes of this research is a guidance document regarding selection, application, and interpretation of sensitivity analysis methods applied to quantitative risk assessment models. This workshop helps practitioners in selecting specific sensitivity analysis methods that are relevant to a particular case study and to the characteristics of the model. Practitioners can also use the instructions in the workshop to aid in interpreting results from a sensitivity analysis in response to a particular modeling objective. Workshop participants will be provided with course notes, a copy of the guidance document, and a tutorial with examples for instructing attendees how to perform sensitivity analysis using common sensitivity analysis methods. The methods will also be illustrated with two practical case study examples. This workshop is aimed at practitioners who are already familiar with basic concepts of statistics and probabilistic simulation and who wish to refine their knowledge regarding sensitivity analysis methods.

### **WK2 Benchmark Dose Modeling and Its Use in Risk Assessment**

**Jay Zhao/Toxicology Excellence for Risk Assessment, [zhao@tera.org](mailto:zhao@tera.org)**

**Pre-Reg: \$249, Onsite: \$309**

The training course will be designed to give an overview of benchmark modeling software for cancer and noncancer dose-response assessment, and provide a hands-on experience in using the EPA BMDS software. Through this training course, participants will learn the basic concept of BMD approach, when BMD modeling is appropriate for cancer and noncancer dose-response assessment, how to select an appropriate model and appropriate data to model, how to conduct benchmark modeling, and how to select an appropriate BMD point of departure for use in a human health risk assessment. This workshop will cover all the BMD models available in current version of EPA's BMDS software.

### **WK3 Beyond Monte Carlo: An Introduction to Imprecise Probabilities**

**Scott Ferson/Applied Biomathematics, [scott@ramas.com](mailto:scott@ramas.com)**

**Pre-Reg: \$175, Onsite: \$235**

This full-day tutorial introduces the notions of interval-valued probabilities and imprecisely specified probability distributions and their uses in risk analysis. It reviews five practical and quantitative approaches based on these elementary notions. The simplest approach uses the idea of interval probability, in which the probability of an event can be specified as an interval of possible values rather than only as a precise one. This idea, dating from George Boole, provides a convenient way to assess the reliability of fault-tree risk analyses. This idea is generalized by probability bounds analysis, which propagates constraints on a distribution function through mathematical operations, and Dempster-Shafer theory which recognizes that uncertainty attending any real-world measurement may not allow an analyst to distinguish between events in empirical evidence. These approaches are related to robust Bayes (aka Bayesian sensitivity) methods, in which an analyst can relax the requirement that the prior distribution and likelihood function must be precisely specified. The most general approach comes from the theory of imprecise probabilities in which uncertainty is represented by closed, convex sets of probability distributions.

These five approaches redress, or comprehensively solve, several major deficiencies of Monte Carlo simulations and of standard probability theory in risk assessments. For instance, it is almost always difficult, if not impossible, to completely characterize dependencies among variables in a risk analysis. As a result, in the practical situations where empirical data are limiting, these difficulties can result in assessments that are arbitrarily over-specified and therefore misleading. More fundamentally, it can be argued that probability theory has an inadequate model of ignorance because it uses equiprobability as a model for incertitude and thus cannot distinguish uniform risk from pure lack of knowledge. In most practical risk assessments, some uncertainty is epistemic rather than aleatory, that is, it is incertitude rather than variability. For example, uncertainty about the shape of a probability distribution and most other instances of model uncertainty are typically epistemic. Treating incertitude as though it were variability is even worse than overspecification because it confounds epistemic and aleatory uncertainty and leads to risk conclusions that are simply wrong. Approaches based on imprecise probabilities allow an analyst to keep these kinds of uncertainty separate and treat them differently as necessary to maintain the interpretation of risk as the frequency of adverse outcomes.

The interval and imprecise probability methods also make backcalculations possible and practicable. Backcalculation is required to compute cleanup goals, remediation targets and performance standards from available knowledge and constraints about uncertain variables. The needed calculations are notoriously difficult with standard probabilistic methods and cannot be done at all with straightforward Monte Carlo simulation.

Although the five approaches arose from distinct scholarly traditions and have many important differences, the tutorial emphasizes that they share a commonality of purpose and employ many of the same ideas and methods. They can be viewed as complementary, and they constitute a single perspective on risk analysis that is sharply different from both traditional worst-case and standard probabilistic approaches. Each approach is illustrated with a numerical case study and summarized by a checklist of reasons to use, and not to use, the approach.

The presentation style will be casual and interactive. Participants will receive a CD of the illustrations used during the tutorial.

### **WK4 Integrated Risk Communication and Decision Analysis: Process, Methods and Tools**

**Igor Linkov/Cambridge Environmental Inc., [linkov@cambridgeenvironmental.com](mailto:linkov@cambridgeenvironmental.com)**

**Pre-Reg: \$350, Onsite: \$410**

This full-day workshop will explore strategic risk communication with decision analysis as an advanced approach to formulating and implementing effective risk communications within an integrated risk management approach. Proven processes, methods and new tools available to risk assessors, decision makers and communicators will be highlighted.

Communication efforts often fail because those responsible for doing the communication are not familiar with the range of interests associated with an issue. This range is captured in the notion of “communities of interest” which is displacing “stakeholders” as a concept for identifying or categorizing target populations for risk communication. From “educating and informing” audiences, the professional practice of risk communication is fast evolving toward a process orientation, one that is true to the best principles and practices in the sciences of risk and communication and applying robust methods and tools that draw on current understanding in the relevant disciplines. Well beyond the treatment of risk communication as an event, or task, or readily addressed by conversational techniques, or physical and oral mannerisms, risk communication is being seen as integral to an effective risk management process. The engineering of risk communication is becoming more and more important for a wide range of organizations. Environmental decisions are often made with an arbitrary process that may or may not be based on risk analysis and may not involve risk communication considerations. Multi-criteria decision analysis (MCDA) provides better-supported techniques for the comparison of project alternatives, and it also provides structured methods for the incorporation of project stakeholders’ opinions in the ranking of environmental policy alternatives.

While each discipline operates within its own set of methods and tools, many decisions may benefit from the fusion of the two disciplines. Risk communicators operating in a risk analysis setting may benefit from the structure provided by decision analysis when, for example, tradeoffs must be made between risks, alternatives need to be clarified and selected, and when there is some dynamic possibility of resolving uncertainty. Decision makers may benefit from adding certain formalism and a structure to risk communication challenges by quantitative assessment of what must be modeled and how, who must be involved, as well as rules about what must be done given the findings of the risk analysis study.

This presentation will provide our thoughts regarding how DA techniques can be effectively used to augment the formal risk assessment and risk communication process, and furthermore how regulations may be modified to accommodate these approaches in order to allow agencies to really make better decisions. It takes advantage of simple measurement methods to enable communicators to adjust strategies and messages in ways that can also improve their overall process for developing both. Presenters will explore the risk communication and decision analysis process in detail. They will also provide practical case examples of how the approaches have been successfully applied. The workshop will provide a forum for dialogue about the recent developments in the field of risk communication and decision analysis, and provide participants an opportunity to practice risk communication planning and strategy development through realistic scenario work. Case examples of successful applications from around the world will be offered. Participants will be encouraged to share examples of their past or current risk management and risk communication challenges to stimulate “real time” applications of the process.

**WK5 For Creators and Users of Health Risk Assessments: Reading Between the Lines of an Environmental Health Risk Assessment**

**Brandolyn Thran/US Army Center for Health Promotion and Preventive Medicine, brandolyn.thran@us.army.mil**

**Pre-Reg: \$275, OnSite: \$335**

The purpose of an environmental health risk assessment is to provide meaningful information in support of the decision making process. Environmental health risk assessments can be very complicated and are often considered a balance between art and science. Therefore, it is important that those who review health risk assessments are able to understand the complexities of the science and have an awareness of the “art” applied to health risk assessments. This one-day course will provide those who prepare and review risk assessments (e.g., project managers and decision makers) an overview of the basic components of environmental health risk assessments and identify “problem areas” that are potentially confusing, misunderstood, misapplied, and misinterpreted. Some of the problem areas that will be addressed include, but are not limited to: the interpretation of hazard quotients; biological versus statistical significance; conflicting outcomes of human and ecological risk assessments; and, identification of appropriate receptors. This will allow the course attendee to be able to ask critical questions of the risk assessments they review so the assessment can be used appropriately in the decision process. In addition, suggestions for developing risk assessment review comments will be provided. The focus of the course will be on the human health risk assessment paradigm; however, points will be extrapolated to address similar issues in ecological risk assessment. A fictional but reality-based case study will be the backbone of the course providing a format for minimal lecture-time and maximum hands-on-activities time. The course is open to new and seasoned health risk assessment reviewers, as well as risk assessors, and the instructors will encourage open dialogue among course attendees.

**WK6 Zoonotic Diseases Risk Assessment And Mitigation**

**Moez Sanaa/Veterinary School of Alfort, France, msanaa@wanadoo.fr**

**Pre-Reg: \$275, OnSite: \$335**

**CANCELLED**

**Half Day Morning: 8:00AM-12:00PM**

**WK7 Beyond Point Estimates: Risk Assessment Using Interval and Possibilistic Arithmetic**

**Arlin Cooper/Sandia National Laboratories, acooper@sandia.gov**

**Pre-Reg: \$175, Onsite: \$205**

This half-day workshop introduces interval analysis and possibility theory for propagating uncertainty in quantitative risk analyses where data are very limited. Interval analysis, although less powerful than other methods when information is abundant, can be used for analyzing uncertainty of all kinds no matter what its nature or source. As the simplest method for handling uncertain quantities, we use it to demonstrate many of the commonalities that unite all uncertainty theories. Some of its details can be subtle and inattention to them may lead to seriously erroneous conclusions. Topics will include (i) the algebra you already know can hurt you, (ii) how to specify inputs when you don't know much, (iii) comparison with other approaches of uncertainty analysis, and (iv) combining possibility and probability theories. The methods will be applied to several examples and case studies, including ground water contamination, event-tree safety assessment. Participants will receive a workbook of illustrations used during the workshop.

**WK8 Incorporating “Omic” Information into Risk Assessment and Policy**

**Elaine Faustman/University of Washington, faustman@u.washington.edu**

**Pre-Reg: \$250, On-Site: \$280**

This half-day course is designed for risk practitioners who have an interest in the emerging technologies of genomics, proteomics, and metabolomics – increasingly referred to as “Omics”. We will provide both a general overview of the science and describe how they are used in risk assessment and policy.

The course will proceed in three discrete modules:

1. The Omic Revolution: The overview will provide background information to understand the central paradigm of the connection between DNA, RNA, and proteins in the functioning of cells and organisms. This session will include a brief introduction to transcription and translation and the flow of information from genes to functional protein. We will provide a definition of “omics” and new “omic” technologies will be discussed including genomics, proteomics, metabolomics, metabonomics, nutrigenomics, etc.
2. The Omic Revolution's impact on Risk Assessment: The use of “omic” tools in science is providing new ways to understand the impact of environmental exposures of toxicants on living organisms. We will review examples of how these tools are used to understand toxicological response at the molecular, cellular, organ and organism levels. We will also look at their use in defining mechanisms of toxicity and susceptibility. Examples of how information from new “omic” tools can be incorporated into human health risk assessment. The importance of understanding the sources of variability in applying “omic” tools will be emphasized. Approaches and issues related to data analysis, experimental design, and bioinformatics will be discussed.
3. Current incorporation into Policy: We will look at current policies and practices for incorporating information from “omic” tools into Risk Assessment at two Federal agencies, USEPA and USFDA. Future directions within genomics will be discussed.

## Half Day Afternoon: 1:00PM-5:00PM

### **WK9 Intermediate Topics on Health Risk Assessment of Chemical Mixture**

**Linda K. Teuschler/US EPA, [teuschler.linda@epa.gov](mailto:teuschler.linda@epa.gov)**

**Pre-Reg: \$249, Onsite: \$279**

This half-day workshop presents intermediate topics and hands-on exercises on risk based methodologies for assessing cumulative health risk from exposure to chemical mixtures, including considerations of multiple route exposures and toxicological interactions. Included are limited descriptions of basic concepts, the introduction of cutting edge chemical mixture health risk assessment risk issues, explanation of state-of-the-art methods, and hands on exercises for several important classes of chemical mixtures (e.g., pesticides, metals, drinking water disinfection by-products). Workshop topics include: procedures and definitions for selecting among risk assessment methods; methods for incorporating toxicologic interactions data (weight of evidence for interactions; the interaction-based hazard index); discussions of exposure issues unique to chemical mixtures (e.g., environmental transformations); use of physiologically-based pharmacokinetic modeling of interactions and multiple route exposure assessment; and integrating relative potency factors with response addition for mixtures of chemicals representing similar and dissimilar toxic modes of action. The content of this workshop includes a general overview of chemical mixture health risk assessment data evaluation and procedures, a detailed description of several new methods, and in-depth hands-on exercises with test data sets. Discussions include real world examples, exercise results, issues for application of the procedures, and general questions and comments. Participants are asked to bring a calculator.

### **WK10 Replacing Default Values for Uncertainty Factors with Chemical Specific Adjustment Factors: Reducing Uncertainty in Noncancer Risk Assessment**

**Lynne Haber/Toxicology Excellence for Risk Assessment, [Haber@tera.org](mailto:Haber@tera.org)**

**Pre-Reg: \$175, Onsite: \$205**

The World Health Organization, through the International Programme on Chemical Safety (IPCS), has recently established guidance on the use of mechanistic data to replace default uncertainty factors for interspecies extrapolation and intraspecies variability in deriving risk values such as Reference Doses (RfDs) and Tolerable Concentrations (TCs). This guidance informs the choice and application of data that can be used to replace defaults with chemical specific adjustment factors (CSAFs). CSAFs fall on the continuum of the use of data in deriving risk values. At one end of the continuum is the use of the traditional defaults, while at the other end is the use of extensive chemical-specific data in physiologically-based pharmacokinetic (PBPK) modeling, or even biologically-based dose-response (BBDR) modeling. In between these two extremes are the use of categorical defaults, such as the dosimetric approach used in the U.S. EPA's RfC and cancer risk assessment methods, and CSAFs. The CSAF framework is based on early work by Renwick and applied by IPCS. This approach first subdivides the uncertainty factors for interspecies differences (UFA) and human variability (UFH) into toxicokinetic (TK) and toxicodynamic (TD) components. The data relevant for each subcomponent is then evaluated to determine whether chemical-specific data can be used in place of the default. Any one or all of these four subfactors can be replaced by chemical-specific data. In the absence of chemical-specific data, default values of 2.5 and 4.0 have established for the TD and TK component of UFA, while the default values for the TD and TK

components UFH were each established at one-half order of magnitude (3.2). Use of the CSAF framework allows the improved use of available data in deriving risk values, and can assist in targeting new studies to address uncertainties and lead to more accurate risk values. CSAFs have been used by the U.S. EPA in deriving an RfD for boron and by Health Canada in deriving a TC for 2-butoxyethanol. This half-day workshop will provide a brief review of the use of uncertainty factors and historical perspective on the reliance on quantitative data to develop values for inter- and intraspecies extrapolation. The course will focus on the IPCS methodology for CSAF development, including the thinking process and steps used for evaluating data. Examples and classroom activities will be used as instructional aids.



# Society for Risk Analysis — Registration Form December 4-7, 2005 - Buena Vista Palace Hotel Preregistration Deadline: Friday, November 4

PLEASE PRINT CLEARLY

SRA Member # \_\_\_\_\_

Name: (For Badge) \_\_\_\_\_

Affiliation: (For Badge, Limit to 15 Characters and Spaces) \_\_\_\_\_

Mailing Address: (Include Full Name of Business Affiliation) \_\_\_\_\_

City: \_\_\_\_\_ State/Country: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Phone: \_\_\_\_\_ FAX: \_\_\_\_\_ Email: \_\_\_\_\_

### SPECIALTIES: (YOU MAY CHOOSE A MAXIMUM OF 3)

- (30) Dose Response — (31) Ecological Risk Assessment — (32) Economics and Benefit Analysis
- (33) Engineering — (34) Exposure Assessment — (35) Biological Stressors Specialty Group
- (36) Risk Communication — (37) Risk Science & Law — (38) Decision Analysis & Risk

### EMPLOYMENT (CHOOSE ONE)

- (90) Government — (91) Industrial — (92) Medical — (93) National Laboratory
- (94) University — (95) Other — (96) Private Practice — (97) Military

### DISCIPLINE (CHOOSE ONE) HIGHEST DEGREE

- (60) Economics — (61) Engineering — (62) Environmental Sciences — (63) Law and Policy
- (64) Philosophy — (65) Psychology/Sociology — (66) Public Health Sciences — (67) Other: \_\_\_\_\_

### FEES

- Continuing Member\* (to renew chapter/section dues continue to next page ) \$490.00 **After 11/4/2005** \$590.00
- Member *(Available to SRA members who have paid their 2005 dues only)* \$385.00 \$485.00

*Members: For Chapter & Section dues renewal continue to next page and fax renewal form with registration form*

- Non-Member\*\* (Fill out form on following page) \$555.00 \$655.00

- Student \$105.00 \$205.00

- One Day  Monday  Tuesday  Wednesday \$225.00 \$225.00

### WEDNESDAY BOX LUNCH

- Turkey  Ham  Vegetarian \$ 25.00

### WORKSHOPS — SUNDAY, DECEMBER 4 (PLEASE INDICATE CHOICE)

- WK1-All Day (Mokhtari) \$295.00 \$355.00
- WK2-All Day (Zhao) \$249.00 \$309.00
- WK3-All Day (Person) \$175.00 \$235.00
- WK4-All Day (Linkov) \$350.00 \$410.00
- WK5-All Day (Thran) \$275.00 \$335.00
- WK6-All Day (Sanaa) \$275.00 \$335.00
- WK7-AM (Cooper) \$175.00 \$205.00
- WK8-AM (Faustman) \$250.00 \$280.00
- WK9-PM (Teuschler) \$249.00 \$279.00
- WK10-PM (Haber) \$175.00 \$205.00

### SPECIAL EVENTS

- Golf Tournament (Sunday AM) TBD

\*Includes Meeting Registration and 2006 Membership Dues.; \*\*Includes a 1 year SRA Membership for 2006

Registration Total \_\_\_\_\_

Chapter/Section Dues Total (from next page) \_\_\_\_\_

Grand Total \_\_\_\_\_

### PAYMENT *(Please indicate method of payment, do not mail original)*

- Check # \_\_\_\_\_  Purchase Order # \_\_\_\_\_  VISA  MasterCard  American Express  Discover

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Cardholder Name \_\_\_\_\_ Signature \_\_\_\_\_

Cardholder Billing Address \_\_\_\_\_

Make check (please note check # above) payable and mail to: **Society for Risk Analysis, 1313 Dolley Madison Blvd, Suite 402, McLean, VA 22101**

**All cancellations are subject to a \$50 service charge. Cancellations must be in writing to the SRA Secretariat. Cancellation letters received by November 4**

**will be refunded total registration fees minus the \$50 service charge and will be refunded after the meeting. No refunds will be issued on cancellations**

**received after November 4.**

