



Inhalation and Respiratory Specialty Section

of the Society of Toxicology



Message from the President

April 08, 2021

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Dear IRSS Members,

I am glad to put my thoughts for this Spring 2021 newsletter that we are almost there towards the end of pandemic caused by SARS-CoV-2. We have had our fill of Zoom calls, mask wearing, social distancing, elbow bumps, streaming service binging, and a whole lot more with cancellation of two in-person SOT meetings and joining via Zoom. Our members deserve a lot throughout this turmoil, as it is well earned that we celebrate the achievements of our members and focus on our virtual meeting.

First, it was a great pleasure hosting the evening reception of our Specialty Section on Wednesday, March 17, 2021 which was well-attended with a great success. I'd like to say thank you again to our presenters, moderators, and attendees of this year's webinar series focusing on COVID's effects on the respiratory system. The insights gained from both discussions were truly eye-opening. Second, congratulations to all of this year's award winners: Samantha Snow, Gagandeep Kaur, Eva Vitucci, Carmen Lau, John Morris, Keith Rogers, and Meghan Rebuli. We, as a society, are very proud of your endeavors and continued strive towards excellence in this field. And last, but certainly not least, congratulations to our incoming Executive Committee and our incoming IRSS President, Judy Zelikoff and Vice President Melanie Doyle-Eisele. I am certain that even though the current state of the world will throw more trials your way, you all will not only overcome but thrive in your endeavors.

I hope you all enjoyed the SOT Virtual Meeting with wide variety of sessions/posters and found a free moment to attend some of our sponsored events too. Perhaps, like one of my mentees, you even learned something excitingly new that you plan to implement in your upcoming research. And if you are like me and find it difficult to attend anywhere near as many sessions as you desire to, do not fret. We have a forthcoming seminar by Dr. James McGrath and Dr. Eliseo Castillo. Discussing microplastics, and their association with pulmonary risk is sure to be an enlightening conversation and one I personally look forward to. Thanks to Holger Behrsing to continue the legacy of this important component of the IRSS.

Finally, thank you all for your membership in IRSS! You all have contributed to making our Specialty Section inclusively diverse and I could not feel more honored to have been your President during this challenging year. I look forward to assisting you all in my new capacity as Past President and all the discussions/webinars we shall have in the future. Best of luck to you all!

Respectfully yours,

Irfan

Irfan Rahman, PhD

President, Inhalation and Respiratory Specialty Section



Executive Committee 2020-2021

President



**Irfan
Rahman**

Vice President



**Judy
Zelikoff**

VP-elect



**Melanie
Doyle-Eisele**

Sec/Treas



**Mehdi Saeed
Hazari**

Past President



Matt Campen

Sr Councilor



**Amie
Lund**

Sr Councilor



**Christopher
Reilly**

Jr Councilor



**Holger
Behrsing**

Jr Councilor



**Marusia
Popovech**

Postdoc



Colette Miller

Grad student



**Elise
Hickman**



Inhalation and Respiratory Specialty Section

of the Society of Toxicology

Incoming Executive Committee 2021-2022

President



**Judy
Zelikoff**

Vice President



**Melanie
Doyle-Eisele**

VP-elect



**Kym
Gowdy**

Sec/Treas



**Meghan
Rebuli**

Past President



**Irfan
Rahman**

Sr Councilor



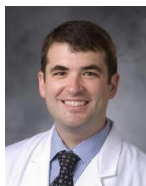
**Holger
Behrsing**

Sr Councilor



**Marusia
Popovech**

Jr Councilor



**Robert
Tighe**

Jr Councilor



**Natalie
Johnson**

Postdoc



**Thivanka
Muthumalage**

Grad student



**Michael
Yaeger**

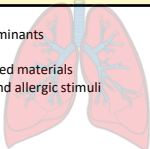
INHALATION AND RESPIRATORY SPECIALTY SECTION

Description

The Inhalation and Respiratory Specialty Section provides a focus for members of the Society of Toxicology dealing with the impact of airborne chemicals and particles on the body. The Section meets regularly at the SOT Annual Meeting to promote a better understanding of inhalation and respiratory tract toxicology, to recognize students and colleagues for notable contributions to research, and to address issues of importance to this field. IRSS sponsors webinars and other educational opportunities.

Issues of Interest

- Indoor and outdoor air pollution
- Occupational exposure to airborne contaminants
- Therapeutic drug delivery by inhalation
- Deposition and pharmacokinetics of inhaled materials
- Interactions between inhaled materials and allergic stimuli
- Airway injury from systemic toxicants
- Systemic injury from airway exposure
- Biomarkers of exposure and disease



Membership Benefits

- Network with inhalation and respiratory toxicologists from industry, government, and academia.
- Present your work in sponsored and selective specialty sessions.
- Mentoring junior members.

Reception and Awards Meeting

Wednesday, March 17, 2021

4:30 PM – 6:30 PM ET

Virtual Meeting via Webex/Zoom

Please join us to honor our award winners and discuss member involvement.

Executive Committee 2020-2021/2022

Sponsored Events at SOT Virtual Meeting

- "From Inhaled Particles to Neurodegeneration and Toxicity: Evidence from Studies in Volunteers, Experimental Animals, and Cell-Based Systems" (3/16/2021 at 11:15 AM EST)
- "It Is Not Just Air: Exposure to Indoor Air Pollution, Diagnostic Tools, and Evaluation of Health Effects" (3/17/2021 at 11:30 AM EST)

Workshops:

- "Standardization of In Vitro Inhalation Exposure for Regulatory Acceptance" (3/15/2021 at 11:15 AM EST)
- "Precision-Cut Lung Slices: A Versatile Tool for Pulmonary Toxicology" (3/16/2021 at 11:15 AM EST)
- "New Approaches for the Identification and Evaluation of Chemical Respiratory Sensitizers" (3/22/2021 at 11:15 AM EST)

Continuing Education:

- "Establishing Confidence in Organ-on-a-Chip Systems for Toxicity Testing: Lung-on-a-Chip as an Example" (3/26/2021 at 11:00 AM EST)

IRSS 2021 Award Winners

Paper of the Year Award: Samantha Snow, US EPA
Postdoctoral Award: Gagandeep Kaur, University of Rochester
Mary Amdur Student Award: Eva Vitucci
Career Achievement Award: John Morris, University of Connecticut
Donald E. Gardner Inhalation Toxicology Education Award: Keith Rogers, University of North Carolina
Young Investigator Award: Meghan Rebuti, University of North Carolina

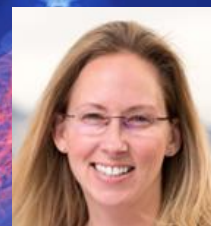
Inhalation Toxicology Through the Ages

0-1000 CE	1000-1700	1700-1900	1900-1920	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s	2020s +
79 CE: Mount Vesuvius Erupts Destroyed Pompeii and Herculaneum, suffocating Pompeii the Elder. 535 CE: Air is a Birthright Roman Emperor Justinian proclaims, "By the law of nature these things are common to mankind – the air, running water, the sea." 673 CE: Greek Fire Ancient "napalm" described by the Crusaders as consisting of naphtha, quicklime, Sulphur, and saltpeter.	1700-1900: Industrial Revolution Mining and combustion of coal increases from 2.7 million tons in 1700 to 250 million tons in 1900. Percival Pott (1773) notes increased incidence of cancer among chimney sweeps. 1863: Alkali Act Passed Establishment of the Britain's first pollution inspectorate following extensive property damages caused by emission of hydrogen chloride gas. 1890s: London's "Killer" Smog Brought on by temperature inversions in January, deadly smog events in London begin to increase in duration and severity.	1930: Hawk's Nest Incident Hundreds of African-American workers died between 1927-1935 of acute silicosis while digging a hydroelectric tunnel for Union Carbide. 1935: The Dust Bowl Clouds of dust from years of drought cause thousands of deaths due to particle exposure and starvation in the Great Plains.	1950: Smoking & Lung Cancer Sir Richard Shaboe Doll and Bradford Hill publish first paper linking smoking and lung cancer. 1952: London Great Smog Caused or contributed to as many as 12,000 deaths. Continued smog events results in the 1956 Clean Air Act by British Parliament. 1954: Mary Amdur Presents her work on low dose health effects of inhaled sulfuric acid and sulfur dioxide to severe punishment. Today, the Mary Amdur Endowment supports student awards.	1971: U.S. EPA Established In addition to establishing the EPA, the 1970 Amendments of the Clean Air Act, first passed in 1963, authorizes for the regulation of industrial and mobile sources of air pollutants. In 1971, EPA names 4 oxidant criteria pollutants, adding lead to the list in the mid-1970s. 1973: Leaded Gasoline Phase Out Following longstanding suspicion of the neurotoxic effects of lead, increased lead in children and the introduction of the catalytic converter resulted in the EPA to require a gradual reduction in gasoline lead content. Within 20 years, the number of children with elevated lead levels dropped by 98%.	1993: Harvard Six Cities Study Groundbreaking study found a strong link between air pollution and mortality risk, spurring improved U.S. regulations on fine particulate matter. 1995: Tokyo Subway Sarin Gas Members of religious group Aum Shinrikyo released sarin gas in Tokyo subways, killing 12 and injuring 6,000. 1999: Libby, MT Asbestos The EPA warns that anyone living in this northwest Montana town for six months any time before January 1991 was most likely exposed to harmful levels of asbestos.	2015: Beijing Air Pollution A striking difference in air quality is observed after Beijing achieves clear blue skies in time for a military parade. Less than 24 hours later, Beijing AQI shoots from 17 to 160+. 2016 & 2018: New Delhi Air Pollution PM 2.5 reached up to 550 µg/m ³ in November 2016, leading to poor visibility, increased mortality from respiratory diseases, and grounding of flights. 2019: EVALI Outbreak Outbreak of e-cigarette, or vaping, associated lung injury primarily associated with illicit THC products.	1306: Sea Coal Burn Ban Blacksmiths exempt, compliance and enforcement prove difficult. 1489: Incas in the Bronze Age Using core samples obtained from the Quelccaya ice cap in Peru, the Incas begin smelting bismuth in the late 1400s. Signs of air pollution swiftly rise once the Spanish conquer the Incas in 1533. 1556: Tobacco Arrives in Europe Brought by French diplomat and scholar Jean Nicot. Nicotine is named after him.	1909: Glasgow Smog Smog events result cause 1,000 deaths in "Auld Reekie" a town long known for its coal-fire smoke emissions. "Smog" is coined from "smoke fog" by Dr. Harold Antoine Des Voeux in a 1911 report about the incidents. 1915: Chemical Warfare a Reality German chemist Fritz Haber developed chlorine and cyanide gases, which were used as blistering agents in WWI. 1928: U.S. PHS Monitors Air Routine monitoring of air pollution in major eastern U.S. cities begins.	1941: St. Louis Post Wins Pulitzer First Pulitzer Prize for environmental reporting, awarded following the 1939 St. Louis smog episode that blocked sunlight for a week, resulting in the first smoke ordinance enacted by a U.S. city. 1942: The Holocaust 1.1 million European Jews and POWs were murdered using hydrogen cyanide gas (Zyklon B) in Nazi extermination camps. 1948: Donora, PA Smog A weather inversion concentrated sulfuric acid, nitrogen dioxide and fluorine in a smog, killing 20 and sickening over 7,000.	1960: SOT Established To create a safer and healthier world by advancing the science and increasing the impact of toxicology. 1961: Vietnam War U.S. spraying of herbicides results in TCDD exposure to Vietnamese citizens and deployed military personnel via widespread routes, including inhalation. Exposure linked to birth defects, cancer, diabetes, and Parkinson's Disease. Recent evidence suggests of health risks in the grandchildren of Veterans.	1982: SOT's IRSS Established By James Stevens (President) and Don Gardner (Vice President). 1986: Bhopal Disaster Accidental release of 40 metric tons of methyl isocyanate from a Union Carbide pesticide plant killed thousands. 1986: Chernobyl Nuclear reactor accident results in largest nuclear disaster in history. Those living within 30 km of the plant inhaled up to 1000 mSv (adults) and 6000 mSv (infants) of radioactive iodine, an isotope known to cause thyroid cancer.	2001: World Trade Center Attacks 9/11 Terrorist attacks result in the deaths of almost 3,000, releasing large amounts of dust containing fiberglass, asbestos, metals, and VOCs into the air. As of 2019, 32,000 cases of respiratory digestive diseases and 9,000 cancers, resulting in over 700 and 600 deaths, respectively, have been reported in first responders. 2008: Kingston Coal-Ash Spill In the largest coal ash spill in the U.S., 1.1 billion gallons of coal fly ash slurry was released into the Emory River. Nearly 40 deaths and 250 cases of illness have been linked to the remediation effort and failure to provide PPE to employees.	Current & Future Challenges COVID-19 Wildland Fires Burn Pit Emissions PFAS E-Cigarettes Climate Change



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Awards: Winners of 2020-2021

Paper of the Year Award: Samantha Snow, US EPA

Postdoctoral Award: Gagandeep Kaur, University of Rochester

Mary Amdur Student Award: Eva Vitucci

Student Award: Carmen Lau, Texas A&M University

Career Achievement Award: John Morris, University of Connecticut

Donald E. Gardner Inhalation Toxicology Education Award: Keith Rogers, University of North Carolina

Young Investigator Award: Meghan Rebuli,
University of North Carolina



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SOT 2021 Program Webinars hosted by IRSS Members: Thank you to all

<https://www.toxicology.org/events/am/AM2021/program-overview.asp>

Symposia: **Sponsored Events at SOT Virtual Meeting 2021**

- “From Inhaled Particles to Neurodegeneration and Toxicity: Evidence from Studies in Volunteers, Experimental Animals, and Cell-Based Systems” (3/16/2021 at 11:15 AM ET)
- “It Is Not Just Air: Exposure to Indoor Air Pollution, Diagnostic Tools, and Evaluation of Health Effects” (3/17/2021 at 11:30 AM ET)

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Webinar Series 2020-2021

“Microplastics and pulmonary risk:

Environmental prevalence, exposure and mechanisms of pulmonary action”

Tuesday, April 13th, 2021 at 2:00 – 3:00 PM EDT.



James McGrath, PhD

Professor of Biomedical Engineering
University of Rochester



Eliseo Castillo, PhD

Assistant Professor, Department of Internal
Medicine
University of New Mexico Health Sciences Center

Moderators:

- **Irfan Rahman, PhD**, Professor, University of Rochester, Rochester, NY
- **Judith Zelikoff, PhD**, Professor, New York University School of Medicine
- **Holger Behrsing, PhD**, Director & Head: Respiratory Toxicology Program, IIVS, Inc.

For nominations and suggestions-

Please contact:

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Director – Respiratory Toxicology

Office: 301.963.4946

hbehrsing@iivs.org





Inhalation and Respiratory Specialty Section

of the Society of Toxicology

Specialty Section-Collaboration and Communication Group (SS-CCG)

Mission: Facilitate the exchange of ideas
across Specialty Sections

Seeking Input:

- Co-sponsored events (webinars, etc.)
 - Best Practices
-

Forthcoming Meetings

The **23rd Congress of the International Society for Aerosols in Medicine (ISAM)** will be held in Boise, Idaho from **22nd to 26th May 2021**.

<https://www.isam.org/website/2021%20Congress/congress>

The International Society for Aerosols in Medicine (ISAM)
office@ISAM.org

Call for Proposals for the International Congress of Toxicology 2022 Scientific Program
Maastricht, **September 18-22, 2022**.

The International Congress of Toxicology is a joined meeting of **IUTOX** and **EUROTOX** (www.ict2022.com). The theme of the 2022 ICT **“Uniting in Toxicology”**, reflects our desire to address topics dealing with different disciplines. Submit your scientific proposals via the [submission platform](#) making sure to include the organiser details, the recommended speakers, and a brief presentation for the proposal.

https://www.eventclass.org/contxt_ict2022/welcome/index

The 10th International Conference on Nanotoxicology (virtual program) is just around the corner. Registration is open, and the conference runs from **April 20-22**. The program is available online. There are **212** presentations consisting of, **7** Keynotes, **86** Abstract Oral Presentations, and **119** Poster Presentations with presenters from over **28** countries.

Further information on this conference can be found in the attached flyer link or at [10th International Conference on Nanotoxicology \(nanotox2021.org\)](http://10th International Conference on Nanotoxicology (nanotox2021.org))



Inhalation and Respiratory Specialty Section

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Dear members,
**We would like to acknowledge and thank all of our
Executive Committee and IRSS members for their
contributions**

IRSS Awards Committee:

Melanie Doyle-Eisele (Chair 2020-2021) and

All EC members

Incoming Chair: Kym Gowdy

**Education, Technical, Outreach,
Endowment and Webinar Committee
(2020-2021)**

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Mehdi Saeed Hazari, PhD

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Colette Miller, PhD (EPA)

Miller.Colette@epa.gov

Elise Hickman, PhD (UNC)

ehickman@email.unc.edu

2021-2021

Webinars:

**Holger Behrsing, Natalie Johnson, and
Marusia Popovech**

Journal Club:

Natalie Johnson and Robert Tighe

Mentorship and Networking:

**Marusia Popovech, Robert Tighe, Thivanka
Muthumalage and Michael Yaeger**

Program Committee:

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Melanie Doyle-Eisele, PhD

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Holger Behrsing, PhD (IIVS)

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Irfan Rahman, PhD

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Amie K. Lund, PhD

amie.lund@unt.edu

Christopher A. Reilly, PhD

Chris.Reilly@pharm.utah.edu

Incoming Chair: Melanie Doyle-Eisele

Membership and Endowment

Incoming Chair: Meghan Rebuli

Technical

**Judith Zelikoff; Melanie Doyle-Eisele;
Holger Behrsing and others**

Thank you for your involvement and commitment.
Please be a part of our endeavors and contact us for
feedback and involvement!



All slides will be available from
www.toxicology.org/groups/ss/IRSS

