

# 2021 INTERNATIONAL RADON AND VAPOR INTRUSION SYMPOSIUM™



OCTOBER 11-13, 2021 BETHESDA, MARYLAND

# **PROGRAM**

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SPEAKERS EXHIBITORS EVENTS

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**AARST-NRPP** Administrative Office 527 N Justice Street Hendersonville, NC 28739



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#### Welcome to the 35th AARST Annual Radon and Vapor Intrusion Symposium!

Now that you have arrived, we know you might be anxious to explore all that the surrounding area has to offer, so we've put together some helpful tips to help you get started!



#### TRANSPORTATION/METRO

It's easy to explore the local area using the Washington Metro. Reasonable trip fares, daily and multi-day passes are available. Jump aboard and discover everything DC has to offer! For more info visit <a href="https://wmata.com/">https://wmata.com/</a>. The nearest Metro station is just a few steps away from the Bethesda North Marriott Hotel & Conference Center (5500 Marinelli Road Rockville, MD 20852). For other transportation options, you may want to consider Uber or Lyft.



#### DINING AND SHOPPING

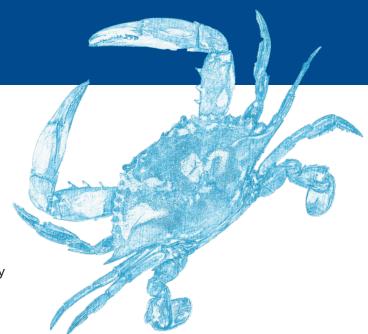
Step outside the back door of the Bethesda North Marriott Hotel & Conference Center and in just a few steps you will enter Pike & Rose. Pike & Rose offers many great dining and shopping opportunities. Check out their website to see everything they have to offer, from fine dining to pizza, spas and shopping, there is something for everyone! For more information visit <a href="https://">https://</a> pikeandrose.com/.

## **WELCOME!**

#### Dear Attendee:

Welcome to AARST's 35th International Radon and Vapor Intrusion Symposium. Thank you for joining us "live and in person" in Bethesda, Maryland to discover the exciting opportunities heading our way and acknowledge how our world is changing.

The AARST Board of Directors, with input from the Radon Standards Consortium and the Certification Council. has set goals and created a strategic plan that will substantially increase business opportunities for our community, while saving lives through meaningful risk reduction. Much progress has been made on many of the objectives they identified:



- Increasing adoption of the voluntary consensus ANSI-AARST standards developed by the AARST Consortium on National Radon Standards.
- Forming a committee to develop a chemical vapor sampling standard including QA components.
- Creating an AARST Board appointed Council of Vapor Intrusion Professionals who will elect two voting representatives to serve on the AARST BOD.
- Expanding public-private partnerships between AARST and state radon programs for standards compliance and enforcement.
- Encouraging CRM manufacturers to produce test report software enabling users to comply with ANSI-AARST reporting requirements more effectively.
- Increasing the number of states that regulate radon professionals through NRPP certification.
- Continuing to build upon our relationship with HUD to better protect families living in all housing types from unsafe exposure to radioactive, cancer-causing radon gas.
- Working with FHFA and the GSEs (Fannie Mae and Freddie Mac) to require radon testing and mitigation in accordance with the ANSI-AARST standards for multifamily loans being financed through these organizations.
- Developing a multi-tiered radon certification program, including Soil Gas Mitigation Compliance Inspectors and development of a vapor intrusion mitigation certification.
- Supporting data-driven initiatives like the CDC radon test-data collection.

Thanks to the hard work by AARST leaders, volunteers, and staff, along with the help of many others, we've made significant progress leaps forward toward achieving these initiatives, even in the face of 20 months of pandemic restrictions that have strained the nation's collective attention, motivation, and creativity. I'm proud of and inspired by our progress.

As you participate in this year's symposium proceedings, I encourage you to ask thoughtful questions, contribute your insight, engage your fellow professionals with respect and dignity, and remember that every possibility begins with a conversation and a friendly "Hello!"

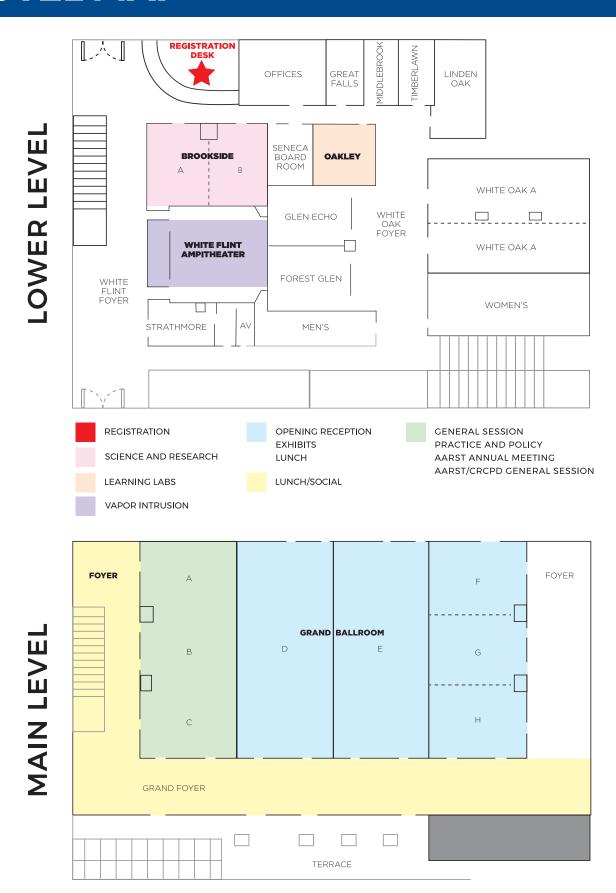
Dallas Jones

**AARST Executive Director** 

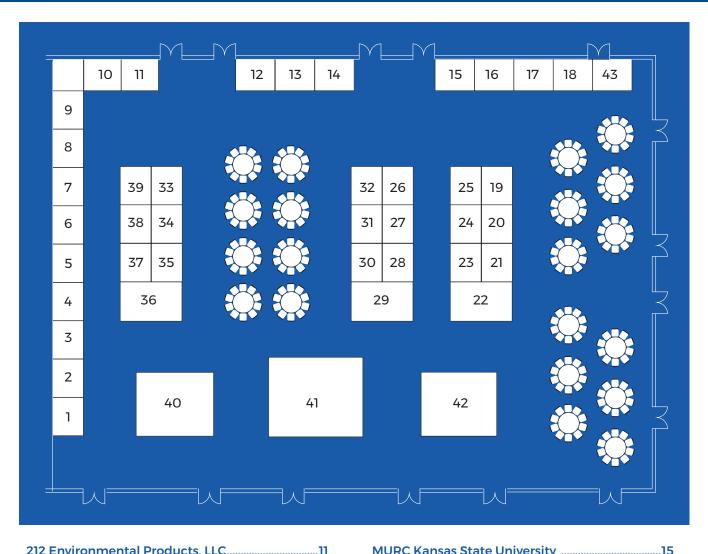
Kyle Hoylman

**AARST President** 

# **HOTEL MAP**



# **EXHIBITOR BOOTHS**



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## **2021 SPEAKERS**

#### KEYNOTE SPEAKER



**JANET MCCABE** has a career history rich in health and environmental advocacy, dedicated to reducing environmental health risks, specifically to improve indoor air quality. McCabe was sworn in as the 16th Deputy Administrator of the United States Environmental Protection Agency on April 29, 2021. Prior to rejoining EPA, she was a Professor of Practice at the Indiana University and Director of the IU Environmental Resilience Institute. Over the course of her career, McCabe has spent time working for EPA's air office, state environmental agencies, and at a children's environmental health advocacy organization based in Indianapolis.



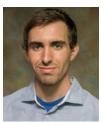
ASHWIN ASHOK is an Assistant Professor in the Dept. of Computer Science at Georgia State University (GSU) since Spring 2017 and directs the MORSE Studio. His research group focuses on emerging technologies in Mobile and Robotic Systems through experiential research. His work spans areas in communications and networking, robotics, environmental systems, and privacy/ security.



Dr. CHRIS BONNIWELL has over 13 years of professional environmental experience as both a state regulator and an environmental consultant and is a licensed professional geologist. He is the chairman of the NRPP Certification Council, and regularly contributes to state and national workgroups developing regulatory guidance and standards, with particular emphasis on the investigation and mitigation of vapor intrusion.



BILL BRODHEAD has been installing radon and vapor intrusion systems since 1984 and the radon mitigation instructor at Rutgers University for 25 years. Bill has authored 17 research papers at AARST conferences. His papers are available at his website http://www.wpb-radon.com/ which is considered one of the best sites to visit to get information about radon, radon fans, and radon mitigation.



RILEY CAREY CIV USARMY CELRB is a health physicist with the U.S. Army Corps of Engineers in Buffalo, NY. He supports the Formerly Utilized Sites Remedial Action Program (FUSRAP) as the project health physicist for the Niagara Falls Storage Site in Lewiston, NY and has worked on other radonfocused projects with the Corps.



RACHEL CARTER, MS, CHMM has over ten years of experience in the environmental field. She is a scientist, hazardous material manager, and project manager and has completed 30+ environmental projects for the U.S. military in the past five years. Ms. Carter's recent projects include managing several installation-wide radon testing and technical services contracts conducted at multiple Navv installations.



**SHANNON CORY, ACI** is CEO of 5 Star Environmental Services, Inc. with certs in the following: Building Officials and Code Admins. Int'l (BOCA), BPI Building Analyst Pro., Exterior Design Inst. (EDI), Southern Building Code Congress Int'l (SBCCI), Int'l Code Council (ICC), Mold & Healthy Home, NRPP, Mold Surveying and Sampling, Thermography Building Science. Member of AARST, ASHI National, and NRPP Adv. Board 2013-19.



JONATHAN EDWARDS became Dir. of the Office of Radiation and Indoor Air (ORIA) in August 2016. In directing its Radiation Protection Division since December 2008, he was responsible for EPA's radiological emergency response, environmental oversight of DOE's Waste Isolation Pilot Plant, scientific and technical radiation risk assessments, and other radiation protection activities. A 1985 graduate of the US Naval Academy.



**ASHLEY FALCO** is the Operations Manager at RAdata, Inc. She entered the radon industry in 2007. She is a State of NJ certified radon mitigation specialist and an NRPP Certified Radon Mitigation Professional. Ashley has been instructing radon CE courses in NJ since 2014 and she is also the Secretary of the NJ-AARST Chapter.



**AARON L. FISHER** is past President of SWAT Environmental of Pennsylvania, the state's largest radon test and mitigation company. He is currently Director of Industry Relations for SWAT Group, Inc. as well as a member of the AARST/ANSI Mitigation Standards Committee. He serves on the PA DEP's Radiation Protection Advisory Committee, advising the department on future regulatory actions.



**DAVID GILLAY** is a partner with Barnes & Thornburg. He heads the Remediation, Redevelopment, and Environmental Transactional Practice Groups and provides environmental counseling with assessing challenged properties. He also represents an influential multi-state environ. consultants' assoc. and works closely with leading technical experts on environ. matters, including rapidly evolving VI guidance.







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**BRIAN HANSON** is the Coordinator for the K-State Radon Programs. Mr. Hanson oversees the Kansas Radon Program as well as manages the K-State Radon Chamber and acts as an instructor for the K-State Radon Courses. Mr. Hanson has a B.S. in Biopsychology from Nebraska Wesleyan University, a M.S. in Biology from the University of Nebraska-Kearney, and a M.A. in Environmental Planning and Development.



**DAVID HILL** is Exec. VP of Spruce Environmental Technologies, Inc. His responsibilities encompass all Spruce brands and divisions. A former radon mitigation contractor with a business that served CT, NY, RI, and other states and managed mitigations nationally. He is a Past President of AARST and holds leadership roles in AARST and other professional organizations. He serves on the ANSI/AARST Standards committees.



**GARY HODGDEN** first engaged radon testing and mitigation services in 1987 as part of a family business for conducting home inspections and repairs that began in 1976. In 2012, Mr. Hodgden directed his full-time efforts towards the AARST Consortium on National Radon Standards, which is accredited by ANSI, and participates in worldwide standards relative to radon.



WES HODGDEN is a second-generation radon and building science specialist with over 25 yrs of experience. He has been involved in over 30,000 radon mitigation and measurement projects. Wes serves as Pres. for Midwest Radon (AQP, Inc), where he oversees projects throughout the US, is a long-standing member of AARST and holds a NRPP Certification with Advanced Certificates in Multifamily Measurement & Mitigation.



KYLE HOYLMAN, AARST President, co-founded Protect Environmental in 2005, where he serves as Managing Partner. He has led the completion of more than 5,900 radon and chemical VI projects, developing several proprietary systems for vapor mitigation and management of long-term stewardship at radon and chemical VI sites. Kyle serves on multiple committees including the EPA VI Science Advisory Committee.



PHIL JENKINS, PhD, CHP (Emeritus) has served on the Board of AARST in every position including President and is a 50-year member of the Health Physics Society. Phil has been at Bowser-Morner's radon reference facility since 1991. Phil's current focus areas include quality assurance documentation in the laboratory, national radon standards and quality assurance of radon measurements.



**DALLAS JONES, Executive Dir. of AARST with** 26 years of radon-related experience in device manufacturing, radon chamber operations, measurement and mitigation services, quality control administration, and public policy pursuits. Dallas drafted the original Radon Awareness Act that Gloria Linnertz convinced the Illinois Legislature to pass in 2008, conceived of the American Radon Policy Campaign and co-founded CanSAR.



SIDOINE KAMGANG, MS, MIS is an Informatics Fellow with the Tracking Program at CDC. She develops tools for data management, analysis, and visualization and provides her expertise in database designing, dashboard development, and information system evaluation. Sidoine is a graduate of the prestigious PHIFP program at CDC, has a master's degree both in Computer Science and Management of Information Systems.



JESSICA KARNS joined A-Z Solutions in 2010 as the Nat'l Sales Director, bringing with her over a decade of experience in her field. Since 2014, she has been an officer and board member of the OARP (Ohio Association of Radon Professionals). In 2015, Jessica was appointed to The National Testing Standard Review Committee where she continues work to strengthen industry standards.



**CHRYSTINE KELLEY** has been an Environmental Protection Specialist with the CO DPH & Environment for the past 29 years and holds a B.S. in Environmental Health from CO State Univ. She has been the Radon Program Manager for CO for 17 years and serves on the Exec. Stakeholders Committee of the AARST Consortium on National Radon Standards and is the CRCPD E-25 Committee Chair.



JOSH KERBER is an Environmental Research Scientist for the Minnesota DOH. Working in radon since 2002 he has worked on the implementation of the Minnesota Radon Awareness Act and the Minnesota Radon Licensing Act. He assists Minnesota contractors with radon and vapor intrusion mitigation assistance. He serves on many national radon standard workgroups including CRCPD's E-25 committee on radon.



MICHAEL KITTO is a retired research scientist from the NY State Health Laboratories and an assistant professor for the State University at Albany. Most of his research focused on the occurrence of radon and other radionuclides in air and water, resulting in 50 journal publications and 60 speaker presentations. Dr. Kitto is a 30-year member of AARST and a former AARST Board member.



TONY LAMASTRA is a CHP, Emeritus with an MPH from the Univ. of Minnesota. He was employed by the PA Dept. of Environmental Resources, then by Bethlehem Steel Corp. before forming his own consulting company in 1985. He has performed radon/radon daughter studies at an in-situ leaching uranium extraction operation, underground mines throughout the US and Canada, and residential, commercial, and industrial facilities.



CHRIS LUTES is a nationally recognized expert in vapor intrusion (VI) with 30 years of professional experience. He has worked on commercial and military VI projects in more than 18 states and several countries. He serves on an ANSI/AARST committee that wrote a mitigation standard for 1-4 family residences and is updating mitigation standards for all buildings. He coauthored four EPA engineering issues on VI.



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**CRYSTAL LYTLE** is the Radon Sales Manager for Fantech Immediate Past President of the AARST Board, and the recently appointed Chairperson of the AARST Foundation. In May, she conquered the Fight for Climb in Denver for the ALA to raise radon awareness. Proudly, she was instrumental in legislative efforts in CO, which led to the successful passing HB21-1195; Licensure of Radon Professionals.



**DANE MALMBERG** is the National Representative for Viper CS Vapor Barriers and has spent the last 13 years with ISI Building Products. His focus is residential moisture control, primarily in crawl spaces and basements. As a trusted resource for best practices, he provides trainings on crawl space encapsulations, covering everything from building science to hands-on installation techniques.



JANE MALONE leads efforts to support radon industry-led state and local policy advocacy, strengthen radon-related building codes, and obtain Congressional and federal agency support for radon risk reduction. Before joining AARST as National Policy Director in 2015, she conducted advocacy to advance decent, safe, and affordable housing at the local, state, and national levels.



TONY MCDONALD is an essential part of A-Z Solutions, Inc. success as President of Operations and Sr. Project Manager for the Companies' radon and vapor intrusion mitigation projects. His expertise has led to the successful installation of hundreds of custom designed SSD systems nationwide. As a current officer of AARST, he is instrumental in shaping national radon and VI remediation guidelines.



**DAVID METZGER** is the owner of 1st Option Radon Measurement located in NE Ohio, specializing in radon measurements and mitigation in singlefamily homes, and measurements in multi-family homes, schools, commercial, multi-use buildings, and gov't facilities. An instructor with Spruce Environmental Services, Inc., David serves on several ANSI/AARST Standards committees and is a member of the NRPP Certification Council.



ED MEYER, GM of The Basement Doctor, ensures that his team provides award-winning service to homeowners. Over 20 years of experience in the industry, Ed has extensive knowledge of basements. Ed studied and worked in QA and served as a Sonar Technician in the US Navy. He pursues finding the right solution for a drier, cleaner, healthier, safer, more energy-efficient



MICHELE MONTI is an epidemiologist for the CDC Nat'l Center for Environmental Health, Environ. Health Tracking Section with responsibilities for national surveillance of environ. contaminants associated with chronic diseases, especially drinking water contaminants, pesticides, and radon. She has a Master of Public Health degree from VA Commonwealth Univ. and a M.S. in Environ, Sciences from the Univ. of VA.



JACOB PARSONS has a B.A. in Humanities and an M.A. in Theology from Bob Jones Univ. Taking computer science and geology/science courses as electives provoked his interests in interdisciplinary studies. Going into business introduced him to radon and then to block chain technologies in commerce. He is pursuing business strategies in the radon industry utilizing governancedecentralized block chain technologies.



JAY PETERS is a human health risk assessor specializing in risk-based regulatory closure strategies, risk communications and assessments for Superfund Sites, Resource Conservation and Recovery Act sites, and brownfield redevelopment sites nationally. He is the practice leader for risk assessment at Haley & Aldrich, Inc. and holds a BS in Toxicology from Northeastern Univ. and an MS in Environ, Health from Tufts University...



**GINA PLANTZ** is a Principal Consultant with Haley & Aldrich with over 20 years of experience in evaluating and mitigating the vapor intrusion pathway, including preferential pathway migration. Gina has long been recognized for contributions to regulatory agencies and professional organizations, including for her support of numerous state and federal VI guidance documents.



**SHAWN PRICE**, is the Dir. of Laboratory Operations for Spruce Environmental Technologies, Inc. overseeing the operations of three facilities, Air Chek and AccuStar's (PA & MA) locations. A former AARST President and current Chair of the Standard Management Council and Chair of the ANSI standard workgroup on radon measurements in schools, single family, and multifamily buildings. He has 32 years of industry experience.



KATHERINE PRUITT is National Sr. Dir. for Policy at the American Lung Association who has overseen a wide range of national health education. Ms. Pruitt currently directs national policy initiatives on outdoor and indoor air quality and serves as the project lead for the Lung Association's seminal annual report State of the Air. She also heads the multi-sectoral National Radon Action Plan Leadership Council.



**CHAD ROBINSON** is the founder of Building Performance Co. and Radon Solutions. NRPP and state of Kansas certified, he has designed and installed hundreds of radon mitigation systems. Chad is currently the Lead Radon Mitigation Trainer for the Kansas State Engineering Extension and is holds active leadership roles as the current VP of AARST and Treasurer of the Heartland



TRYGGVE RÖNNQVIST, Ph.D. is the Technical Manager of Radonova Laboratories AB in Sweden. He has more than 25 years of experience of radon measurements in a radon laboratory which has analyzed more than 3,000,000 passive radon detectors. He is the Radon Specialist of Radonova on the US and Canadian markets. Tryggve received the European Radon Association Award for 2020.



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DR. UTTAM SAHA is a Sr. Public Service Associate, equivalent to a Full Professor, under University of Georgia. He directs the drinking water testing education program of the UGA Extension Service. The Chair of the Drinking Water and Human Health Community of Practice of the National extension, he has authored around 100 journal articles and 28 Extension publications.



BRENT ULBERT joined PDS in 2017. Before entering the radon industry, Brent had a short but illustrious career in small business marketing. He oversaw the marketing campaigns of over 1,200 businesses during his tenure in Northern Colorado. Brent graduated with honors from the University of Wisconsin-Madison earning a Bachelor in Consumer Science and a Certificate in Business in



ADAM SALAM, from Georgia, is an undergraduate at Kennesaw State University finishing a Bachelor of Science in Computer Game Design and Development. He's also a Tutor for the College of Computing and Software Engineering in the field of Computer Science. He specializes in the Unity Game Engine, which primarily uses the C# (C Sharp) programing language.



PAM WARKENTIN is a founding member and current Executive Director of both CARST and a C-NRPP. A certified measurement professional and Project Manager of the Take Action on Radon Program, Pam works closely with the CARST Board of Directors, the C-NRPP Policy Advisory Board, and all CARST committees. She also coordinates with Health Canada and radon stakeholders across the country



DR. HENRY SCHUVER holds a DrPH, Epidemiology, Johns Hopkins School of Public Health and has been an Environmental Scientist with the US EPA's Office of Resource Conservation and Recovery. Cleanup Programs Branch since 1997. He led the development of the 2001 Supplemental Guidance for VI for RCRA EI. Since 1999, he has conducted national workshops to improve the science and understanding of VI.



LAWRENCE E. WELCH holds a Bachelor of Science from the University of Wisconsin at River Falls and a PhD from Iowa State University. He is in his 34th year of teaching at Knox College in Galesburg, IL, where he is the Clara A. Abbott Distinguished Professor of Chemistry.



Bill Spohn, BSME, MSME, PE owns TruTechTools. com, award-winning reseller of tools & test instruments. He holds six US patents & is an avid networker via tech committees, boards, conf. presentations & podcasts; www. BuildingHVACscience.com & https://restalk.libsyn. com/. Bill loves teaching & learning the science of home comfort, health, & energy efficiency. Learn about his Net-Zero home: www.SpohnHome.com.



MARK WHITEHEAD, of Independence, Missouri, is a graduate from the Univ. of Missouri, Columbia, BS-Civil Engineering. Work included environmental cleanup of the USDOE, Kansas City Plant. Mr. Whitehead received a centrifugal air cleaning patent (USPTO) in 2018. Whitehead is testing demonstration units in Kansas City and other US cities to document performance.



**BRUCE SNEAD** is Director of Engineering Extension at Kansas State University and has conducted radon industry training since 1989. Bruce has also led K-State's role in the Kansas Radon Program for 28 years and directs the National Radon Program Services effort for EPA since 2009, which provides technical assistance through toll-free phone lines and online at sosradon.org.



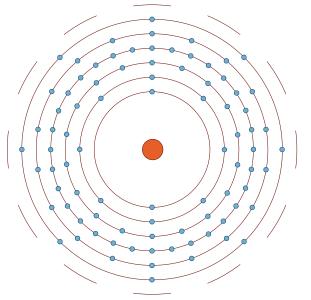
DR. CAROLINA L. ZILLI VIEIRA is a Research Associate in the Dept. of Environmental Health at Harvard T. H. Chan School of Public Health, with interest in the impact of periodically oscillations of solar activity and environmental radiation on air pollution and human health. She has dedicated her career over the past 12 years to investigating the impact of solar activity and related parameters on human health.



STACY STANIFER, PhD, APRN, AOCNS is an Assistant Professor at the Univ. of Kentucky College of Nursing and Co-Leader of the UK Center for Appalachian Research in Environmental Sciences Community Engagement Core. Dr. Stanifer's research interests concentrate on reducing exposure to two environmental carcinogens, radon and secondhand smoke, as a means of cancer prevention.



MICHELLE THOMPSON is the Public Health Industrial Hygienist at the Vermont Dept. of Health. She has been the program manager for the Radon Program and the Envision Program (school environmental health) for over five years. Michelle has a BS in Environmental Engineering from Clarkson University and an MPH in Occupational and Environmental Health from Tulane University.





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# **SYMPOSIUM SCHEDULE**

#### **MONDAY OCTOBER 11, 2021**

All sessions and presenters are subject to change.

TIME	AARST-HOSTED Continuing Education Courses (Pre-symposium) Sunday Courses require separate registration - not included in symposium registration			
8:00-12:00	Vapor Intrusion Mitigation for Radon Professionals (SPRUCE)	OM&M Plans for Single, Multifamily and Large Building Mitigations (SPRUCE)	Policy Advocacy Training (AARST)	Radon Mitigation Compliance Inspector Certification-prep Course (KSU-MURC)
1:00-5:00	VI Diagnostics & Design Case Studies (OBAR)	Compliant Test Reports for Single, Multifamily and Large Buildings (SPRUCE)	Introduction to Uncertainty of Measurements and Minimum Detectable Concentrations (KSU-MURC)	
10:00-5:00	10:00-5:00 Symposium Check-In/Onsite Registration (Lower Level)			(Lower Level)
6:00-8:00 PM	Opening Reception (Main Level Foyer and Exhibit Hall)			

#### **FEATURED SOCIAL EVENTS:**

Sunday 6:00-8:00 PM

**OPENING RECEPTION** 

Monday - Wednesday AM and PM **BREAKS** 

Monday 5:00-6:30

**ALL ATTENDEE COCKTAIL HOUR** 

Tuesday 5:00-6:00

**CHAPTER MEETINGS AND MEETUPS** 

# MONDAY OCTOBER 11, 2021 All sessions and presenters are subject to change.

TIME	Vapor Intrusion	Practice & Policy	Science and Research	Learning Labs
8:00 am	Pl€	enary Session -35th Cele	<b>bration Welcome</b> - D. Oggie	er
8:10	Indoor Radon - Does Everyone Live in a Superfund Site? - Chris Bonniwell			
8:30 - 9:15	ISO-17024 Update, Soil-Gas Mitigation Compliance Inspector Certification, Inspection App – D. Jones			
9:20-10:00	9:20-10:00 Two Options Soil-Gas Hazard Protection Pros have for Producing Soil-Gas Safe Communities - H. Schuver / C. Lutes	9:20 - 9:40 Assessing non-cancer effects of radon particle radioactivity - C L Zilli Vieira  9:40 - 10:00 Large Building and Multifamily		
		Measurement Standard Update - Jessica Karns		
10:00-10:45		BREAK-	EXHIBITS	
10:45	10:45 - 11:30 The Long Game - Adequately	10:45 - 11:05 Non-Compliance Case Studies - D. Jones	10:45 - 11:20 Canadian Radon Initiatives - P. Warkentin	10:45 - 11:15 Learning Lab:
10:45	Managing Indoor Air Risks - D. Gillay	11:05-11:25	Comparison of Consumer-Grade CRMs – B. Hansen, P. Warkentin	212Environmental
11:30-12:00 Remote Monitoring Telemetry - Eliminating Uncertainty in Mitigation Performance - C. Bonniwell	Remote Monitoring	Raising Local Agency Understanding of Rn for Effective Use of Available Grants to Increase Testing and Mitigation - A. Falco	11:20 - 11:40 A Discussion of Unique Mitigation Approaches for Non-Residential Buildings on Military Bases - R. Carter	11:15 - 11:45  Learning Lab  RadonAway
	Eliminating Uncertainty in Mitigation Performance	11:05 - 12:00 Crawl Space Encapsulation Moderator: D. Hill Panelists: D. Mulberg, W. Hodgden	11:40-12:00 Case Studies Using Cyclonic Radon Extraction - M. Whitehead	
12:00-1:00	LUNCH & EXHIBITS			
1:00-1:30	Plenary Session: AARST Annual Meeting			
TIME	Vapor Intrusion	Practice & Policy	Science and Research	Vendor Learning Labs

# MONDAY OCTOBER 11, 2021 All sessions and presenters are subject to change.

1:30-	1:30-2:15 Simultaneous Long-term VOC and Rn Concentration	1:30-1:50 Using Sniffers in Radon Mitigation Diagnostics - B. Brodhead, T. Domingues, M. Koch	1:30-1:50 Domestic Rn Concentrations Upstairs vs. Basement: A Study in NE & MW USA - C L Zilli Vieira	1:30 - 2:00
1:50-	Measurements: What Do they Tell us About Seasonal and Short-Term Temporal Variability? - C. Lutes	1:50 - 2:30 ASD Energy Use (minimizing energy loss) - J. Kerber,	1:50 - 2:10 Contextualizing Rn Activity in NE lowa Caves by Measuring Uranium and Thorium at the Radon Sampling Sites - L. Welch	<b>Learning Lab</b> VaporTrac, LLC
	<b>2:15-2:45</b> A Logical Approach	C. Robinson	2:10 - 2:30  Radon Measurements in Swedish Multi-family Houses - T. Ronnqvist	2:00 - 2:30
2:30	for Evaluating the Vapor Intrusion Sewer Gas Pathway - G. Plantz	2:30 - 2:50 Large Building and Multifamily Mitigation Standard Update - S. Price	2:30 - 2:50 Influence of Decreasing Barometric Pressure Frequencies on Heterogeneous Underground Rn Sources - R. J. Carey	Learning Lab SunRADON
2:50-3:35		BREAK AN	D EXHIBITS	
3:35	3:35-4:15 SSD Design and Installation Integration - Implementing	3:35 - 3:55 Partnerships to grow affordable mitigations - S. Stanifer	3:35 -3:55 The Benefits of a Centralized Public, and Geo-located Rn Measurement Database - J. Parsons	3:35 - 4:05  Learning Lab  EcoSense
3:55	Appropriate VI Solutions for Different Building Types - T. McDonald	3:55 - 4:15 Radon Testing: Accuracy Begins in the Field - S. Price	3:55-4:15 An Underground Testbed for Continuous & Real-time Measurement of Radon -A. Ashok	<b>4:05 - 4:35</b> Learning Lab #6
4:15	4:15-5:00 Influences and Implications of Indoor Air Background Concentrations	4:15-4:35 Interacting with Chambers: How to avoid wasting money and time - P. Jenkins	<b>4:15- 5:00</b> Building Science 101	4:35 - 5:00 Learning Lab #7
	on Health Risks in Residences and Commercial	4:35 - 5:00 Making Radon Visible	- B. Spohn	
4:35	Buildings - J. Peters	- B. Snead		

#### **TUESDAY OCTOBER 12, 2021**

All sessions and presenters are subject to change.

TIME	General Session: AARST & CRCPD	Vendor Learning Labs	
7:30-9:00	Full Breakfast with the Exhibitors in the Hall		
9:00-9:40	Multifamily Buildings From Heck	9:00 - 9:30	
9:40-10:00	<b>EARTH Study Final Results</b> - <i>M. Kitt</i> o	<b>Learning Lab</b> TruTech Tools	
10:00-10:10	Welcome OPEN JOINT DAY	9:30 - 10:00	
	- D. Jones, C. Kelley	<b>Learning Lab</b> Ragnar Group	
10:10-10:40	<b>KEYNOTE "TITLE"</b> - Janet McCabe, EPA Deputy Administrator	10:45 - 11:15	
10:40-10:55	National Radon Action Plan - K. Pruitt, ALA	<b>Learning Lab</b> Professional Discount Supply	
10:55-11:15	Mitigation Simulation Tool/NRPP Training Requirement - A. Salam		
11:15-11:35	State Policy Developments:	11:15 - 11:45	
	- C. Lytle (RMAARST Chapter), Michelle Thompson (VT)	Learning Lab	
11:35 - 11:55	Indiana AARST Compliance Project - D. Jones	LazerWebSites	
12:00-1:30	LUNCH AND EXHIBITS		
1:30-2:10	Legal Liability: Radon and Chemical Vapor Intrusion	1:30 - 2:00	
	Radon and Chemical Vapor Intrusion  - D. Gillay	<b>Learning Lab</b> Airthings - Corentium Pro	
2:10-3:00	National Leadership Reports: EPA - J. Edwards, CRCPD - C. Kelley,	2:00 - 2:30	
	AARST - K. Hoylman, NRPP - D. Jones Update from the Hill - J. Malone	Learning Lab	
		Fantech	
3:00-3:45	BREAK AND EXHIBITS		
3:45-4:00	<b>FHFA Update</b> - K. Hoylman	3:30 - 4:00	
4:00-4:15	Mitigator Survey Results – J. Malone	<b>Learning Lab</b> Environmental Instruments Canada Inc.	
4:15-4:30	State Policy Report Card (AARST  - A. Fisher	4:00 - 4:30	
4:30-4:40	Radon Test Data Snapshot (video)	<b>Learning Lab</b> Festa Radon Technologies	
		4:30 - 5:00	
4:40-5:00	Residential Rn Exposure and Hypertensive Disorders of Pregnancy in Massachusetts:	Learning Lab	
	<b>A cohort study</b> - C. <i>L Zilli Vieira</i>	Stego Industries	
5:00-6:00	Chapter Meetings and Meetups		
	Night on Your Own		

#### **WEDNESDAY OCTOBER 13, 2021**

All sessions and presenters are subject to change.

TIME	Practice & Policy/ Science and Research	Vendor Learning Labs	
8:00 - 8:20	Real World Application of Protocols for Measurement Technicians	8:00 - 8:30	
	- S. Cory	Learning Lab	
		ТВА	
8:20 - 9:00	Post-Mitigation Marketing - B. Ulbert	8:30 - 9:00	
	- B. Olbert	Learning Lab	
		ТВА	
8:20 - 9:00	Raising Local Agency Understanding of Rn for Effective Use of Available Grants to Increase	9:00 - 9:30	
	Testing and Mitigation  - A. Falco	Learning Lab TBA	
	7 7	1-21	
9:20 - 9:40	Determination of Temporal Variation in Indoor Radon Concentration Data from the CDC Tracking Network - M. Monti, S. Kamgang	9:30 - 10:00 Learning Lab LeadPatrol	
9:20 - 9:40	A Case Study of HVAC System Influence on Radon Concentrations Within a Building - D. Metzger		
10:00-10:45	BREAK AND EXHIBITS		
10:45 - 11:05	Long-term Evaluation of a Reusable Radon-in-Water Proficiency Test – U. Saha		
11:05 - 11:25	Radon in Municipal Waste Landfill Methane Gas - T. LaMastra		
11:25 - 12:	Plenary Closing Session: The Future's So Bright - You'll Need Sunglasses		
Noon	END SYMPOSIUM		

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