



**Chemical
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SCIENCE COMMUNICATIONS HUB

Environmental Pollution and Health Impacts: Measurements, Sources and Solutions

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NATIONAL REPORT PUBLICATIONS

National Academies of Sciences, Engineering and Medicine 2022. The Chemistry of Fires at the Wildland-Urban Interface. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26460>.

SCIENTIFIC JOURNAL PUBLICATIONS

Jeon, Jennifer Jisoo, Qian Zhang, Patrick Chepaitis, Roby Greenwald, Marilyn Black, and Christa Wright. "Toxicological Assessment of Particulate and Metal Hazards Associated with Vaping Frequency and Device Age." *Toxics* 2023, 11(2), 155; <https://doi.org/10.3390/toxics11020155>.

He, Linchen, Charles J. Weschler, Yinping Zhang, Feng Li, Michael H. Bergin, Marilyn Black, Junfeng (Jim) Zhang. "Ozone Reaction Products Associated with Biomarkers of Cardiorespiratory Pathophysiology." *American Journal of Respiratory and Critical Care Medicine*. in press (2023). <https://doi.org/10.1164/rccm.202212-2203LE>

Zhang, Qian, Jennifer Jisoo Jeon, Marilyn Black, Travis Goldsmith, Roby Greenwald, and Christa Wright. "Characterization of an Electronic Nicotine Delivery System (ENDS) Aerosol Generation Platform to Determine Exposure Risks." *Toxics* 2023, 11(2), 99. <https://doi.org/10.3390/toxics11020099>

Harries, Megan, David Allen, Femi Adetona, Michelle Bell, Marilyn Black, Jeffrey Burgess, Fred Dryer, Amara Holder, Ana Mascarenas, Fernando Rosario-Ortiz, Anna Stec, Barbara Turpin, and Judith Zerkoff. "A Research Agenda for the Chemistry of Fires at the Wildland-Urban Interface: A National Academies Consensus Report." *Environ. Sci. Technol.* 56 (2022): 15189-15191. <https://doi.org/10.1021/acs.est.2c07015>.

Zhang, Qian, Rodney Weber, Todd Luxton, Derek M. Peloquin, Eric J. Baumann, and Marilyn S. Black. "Metal Compositions of Particle Emissions from Material Extrusion 3D Printing: Emission Sources and Indoor Exposure Modeling." *Science of The Total Environment*, in press available online (2022): 160512. <https://doi.org/10.1016/j.scitotenv.2022.160512>.

Norris, Christina, Ross Edwards, Chinmay Ghoroi, James J. Schauer, Marilyn Black and Michael H. Bergin. "A Pilot Study to Quantify Volatile Organic Compounds and Their Sources Inside and Outside Homes in Urban India in Summer and Winter during Normal Daily Activities." *Environments* 9 (2022): 75-97. <https://doi.org/10.3390/environments9070075>.

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Yang, Irene, Jeannie Rodriguez, Christa Young Wright, Yi-Juan Hu. "Oral Microbiome of Electronic Cigarette Users: A Cross-sectional Exploration." *Oral Diseases* (2022): 1-10. <https://doi.org/10.1111/odi.14186>

He, Linchen, Christina Norris, Xiaoxing Cui, Zhen Li, Karoline K. Barkjohn, Yanbo Teng, Lin Fang, Lili Lin, Qian Want, Xiaojian Zhou, Jianguo Hong, Feng Li, Yinping Zhang, James J. Schauer, Marilyn Black, Michael H. Bergin, and Junfeng (Jim) Zhang. "Oral Cavity Response to Air Pollutant Exposure and Association with Pulmonary Inflammation and Symptoms in Asthmatic Children." *Environmental Research* 206 (2021): 112275. <https://doi.org/10.1016/j.envres.2021.112275>.

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Zhang, Qian, Jenny P. S. Wong, Aika Y. Davis, Marilyn S. Black, and Rodney J. Weber. "Characterization of Particle Emissions from Consumer Fused Deposition Modeling 3D Printers." *Aerosol Science and Technology* 51, no. 11 (2017): 1275–86. <https://doi.org/10.1080/02786826.2017.1342029>.

CONFERENCE PROCEEDINGS

Wright, Christa. "The Unknowns of Vaping: Oxidative Stress, Toxicity, and DNA Damage Across the Device Lifetime." In *The Toxicologist: Supplement to Toxicological Sciences*, Society of Toxicology (SOT) 61st Annual Meeting and ToxExpo, San Diego, CA, 2022. <https://www.toxicology.org/pubs/docs/Tox/2022Tox.pdf>.

Brehmer, Collin, Christina Norris, Karoline K. Barkjohn, Mike H. Bergin, Junfeng Zhang, Xiaoxing Cui, Yanbo Teng, Yinping Zhang, Marilyn Black, Zhen Li, and James J. Schauer. "The Influence of Indoor Air Cleaners on the Oxidative Potential and Sources of Metals in Indoor, Outdoor, and Personal Exposure of School Aged Children to PM_{2.5} in Suburban Shanghai, China." In *Indoor Air 2020 Conference Proceedings*, The 16th International Conference of Indoor Air Quality and Climate. Virtual, 2020. https://www.isiaq.org/conference_proceedings.php.

Davis, Aika, Jordan Cohen, P. Barry Ryan, Debra Harris, and Marilyn Black. "An Evaluation of Flame Retardant Exposure Routes from Upholstered Furniture." In *Indoor Air 2020 Conference Proceedings*, The 16th International Conference of Indoor Air Quality and Climate. Virtual, 2020. https://www.isiaq.org/conference_proceedings.php.

Norris, Christina, Michael H. Bergin, Yinping Zhang, Ross Edwards, Chinmay Ghoroi, Karoline K. Barkjohn, Junfeng Zhang, Marilyn Black, and James J. Schauer. "Quantifying Volatile Organic Compounds and Their Sources in Residences in Ahmedabad and Gandhinagar, India, and in Suburban Shanghai, China." In *Indoor Air 2020 Conference Proceedings*, The 16th International Conference of Indoor Air Quality and Climate. Virtual, 2020. https://www.isiaq.org/conference_proceedings.php.

Zhang, Qian, Aika Davis, Marilyn Black, and Rodney Weber. "Particle and Volatile Organic Compound Emissions from 3D Printers and Their Potential Exposure Risks." In *Indoor Air 2020 Conference Proceedings*, The 16th International Conference of Indoor Air Quality and Climate. Virtual, 2020. https://www.isiaq.org/conference_proceedings.php.

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Davis, Aika, Debra Harris, and Marilyn Black. "A Study of Chemical Exposure from Consumer Products Used in Residential Environments." In *ASHRAE Transactions*, American Society of Heating, Refrigerating and Air-Conditioning Engineers 2019 Annual Conference. Kansas City, MO, 2019. <https://www.ashrae.org/news/esociety/ashrae-2019-annual-meeting-conference-proceedings-available>.

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Fang, Lin. "Characteristics and Inhalation Cancer Risks Assessment of Exposure to VOCs in 20 Asthmatic Children's Homes in Shanghai." In *Indoor Air 2018 Conference Proceedings*, The 15th International Conference of Indoor Air Quality and Climate. Philadelphia, PA, 2018. https://www.isiaq.org/ia_2018_proceedings_page.php.

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Davis, Aika, Marilyn Black, Qian Zhang, Jenny P. S. Wong, and Rodney Weber. "Fine Particulate and Chemical Emissions from Desktop 3D Printers." In *Indoor Air 2016 Conference Proceedings*, The 14th International Conference of Indoor Air Quality and Climate. Ghent, Belgium, 2016. <https://www.isiaq.org/docs/Proceedings.pdf>.

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SUMMIT PROCEEDINGS

Underwriters Laboratories Inc. "Proceedings of the Future of Fire Safety: Exploring the Intersection of Wildfires and Human Health, a Symposium presented at the Society of Toxicology's 62nd Annual Meeting and ToxExp." 2023. https://chemicalinsights.org/wp-content/uploads/2023/06/Chemical-Insights_2023-SOT-Symposium-Proceedings_Final.pdf.

Underwriters Laboratories Inc. 4th Furniture Flammability and Human Health Summit. "A Summary: Managing Fire and Chemical Exposure Risks of Residential Upholstered Furniture." Virtual, 2021. <https://chemicalinsights.org/wp-content/uploads/FFHH-Virtual-Summit-Summary-05.06.21-Final.pdf>.

Underwriters Laboratories Inc. 3rd Furniture Flammability and Human Health Summit. "Proceedings of the Furniture Flammability and Human Health Summit." Atlanta, GA, 2017. <https://chemicalinsights.org/wp-content/uploads/2019/02/2017-FF-Summit-Proceedings.pdf>.

Underwriters Laboratories Inc. 1st 3D Printing and Human Health Summit. "Proceedings of the Safety Science of 3D Printing Summit." Atlanta, GA, 2017. https://chemicalinsights.org/wp-content/uploads/2017/06/3DP_Proceedings_Final.pdf.

Underwriters Laboratories Inc. 2nd Furniture Flammability and Human Health Summit. "Proceedings of the Furniture Flammability and Human Health Summit." Atlanta, GA, 2014. <https://chemicalinsights.org/wp-content/uploads/2017/06/Doc-4-Proceedings-of-the-Furniture-Flammability-and-Human-Health-Summit-held-May-20-22-2014.pdf>.

Underwriters Laboratories Inc. 1st Furniture Flammability and Human Health Summit. "A Read-out of Furniture Flammability and Human Health." Atlanta, GA, 2013. https://chemicalinsights.org/wp-content/uploads/2013_FFHH_Summit_Summary.pdf

KEY TECHNICAL PRESENTATIONS

Black, Marilyn, Birgitte Messerschmidt, and Elliott Horner. "Research Scientists' Perspectives on Climate Impacts for Building Environment and Materials." Presented at the GreenCE professional development webinar, Virtual, June 23, 2023.

Jeon, Jennifer, Xiaojia He, Akshada Shinde, Pam Cushenan, Qian Zhang, Irene Yang, Scott Weaver, Ruiyan Luo, Marilyn Black, Jonathan Shannahan, and Christa Wright. "Assessing the Impact of Vaping Behavior on Metabolomic Profiles, Pro-Inflammatory Responses, and Oral Health Outcomes in ENDS Users." Presented at Metabolomics 2023. June 21, 2023.

Black, Marilyn. "Building Resiliency for Health." Presented at NeoCon, Virtual, June 12, 2023.

Black, Marilyn, Birgitte Messerschmidt, Elliott Horner, and Holley Henderson. "Research Scientists' Perspectives on Climate Impacts for Building Environment and Materials." Presented at the A'23 American Institute of Architects (AIA) Conference on Architecture 2023. June 9, 2023.

Zhang, Qian. "Exposure to 3D Printing Emissions and Potential Health Concerns: New Findings from Laboratory and Field Studies." Presented at IEEE Product Safety Engineering Society (PSES) Chicago chapter meeting, Virtual, May 24, 2023.

Zhang, Qian. "Secondhand Vape Emissions from Electronic Nicotine Delivery Systems." Presented at American Industrial Hygiene Conference & Expo (AIHce), Phoenix, AZ. May 23, 2023.

Zhang, Qian. "Engineering Control to Reduce 3D Printing Exposure." Presented at American Industrial Hygiene Conference & Expo (AIHce), Phoenix, AZ. May 22, 2023.

Bell-Huff, Cristi. "3D Printing in Institutions of Higher Education." Presented at the Campus, Safety, Health, and Environmental Management Association's Fine Arts Community of Practice Meeting. March 15, 2023.

Black, Marilyn, Clayton Wetzel, and Joni Rix. "Identifying and Addressing Emerging Indoor Air Pollutants: School Health and Facilities Staff Collaborations." Presented at the Center for Green Schools, the National Association of School Nurses, and Chemical Insights Research Institute Joint Webinar. Virtual. April 27, 2023. https://www.dropbox.com/sh/vjzo7cjr3wpbuqi/AABSuVK_YW2b8jEvm69qvwIYa?dl=0

Henderson, Holley and Cristi Bell-Huff. "From Research to Impact – Storytelling Science for a Safer World". Presented at the National Science Teaching Association (NSTA) National Conference, Atlanta, GA, March 23, 2023.

Wright, Christa, Marilyn Black, Miriam Calkins, Jaclyn Goodrich, Alesia Jung, and Jim Zhang. "The Future of Fire Safety: Exploring the Intersection of Wildfires and Human Health." Presented at the Society of Toxicology (SOT) 62nd Annual Meeting and Tox Expo, Nashville, TN, March 22, 2023.

He, Xiaojia, Zachery Jarrell, Matthew Smith, Xin Hu, Sami Teeny, Yongliang Liang, Michael Orr, Young-Mi Go and Dean P. Jones. "Exposure to Low-Level Vanadium Pentoxide in Drinking Water Triggers Pulmonary Inflammation and Fibrotic Signaling." Presented at the Society of Toxicology (SOT) 62nd Annual Meeting and Tox Expo, Nashville, TN, March 21, 2023.

Jeon, Jennifer and Christa Wright. "Variances in Vaping Behavior Contribute to Adverse Periodontal Health Effects." Presented at the Society of Toxicology (SOT) 62nd Annual Meeting and Tox Expo, Nashville, TN, March 20, 2023.

Bell-Huff, Cristi. "3D Printing in Institutions of Higher Education." Presented at the Campus, Safety, Health, and Environmental Management Association's Fine Arts Community of Practice Meeting. March 15, 2023.

Black, Marilyn and Cristi Bell-Huff. "Emerging Indoor Air Quality Challenges and Solutions in Our Schools." Presented at the Green Schools Conference, New Orleans, LA, March 1, 2023.

Black, Marilyn and Cristi Bell-Huff. "Chemicals of Concern for Building and EHS Managers." Presented at the Campus Safety, Health, and Environment Management Association (CSHEMA) Webinar Series, Virtual, November 17, 2022.

Black, Marilyn and Debra Harris. "Chemistry 101 for Building Professionals." Presented at the GreenCE/Ron Blank Webinar, Virtual, November 14, 2022.

Black, Marilyn and Holley Henderson. "Specifying Residential Upholstered Furniture to Safeguard Human Health." Presented at the American Society of Interior Designers (ASID) Virginia Chapter Meeting, Virtual, November 10, 2022.

Black, Marilyn, Debra Harris, and Birgitte Messerschmidt. "Wildfires + Resilience: Whole Building Approach from Design to Occupancy." Presented at the Greenbuild International Conference and Expo, San Francisco, CA, November 3, 2022.

Black, Marilyn and Debra Harris. "Chemistry 101 for Building Managers." Presented at the International Facility Managers Association's (IFMA) Environmental Stewardship Utilities & Sustainability (ESUS) Webinar Series, Virtual, October 19, 2022. <https://www.youtube.com/watch?v=7wuKZGnMM1o>.

Bell-Huff, Cristi and Holley Henderson. "From Research to Impact – Storytelling Science for a Safer World." Presented at the Campus Safety and Environmental Management Association (CSHEMA) 2022 Fall Symposium, Princeton, NJ, October 11, 2022.

Zhang, Qian, Christa Wright, Aika Davis, and Marilyn Black. "Impacts of 3D Printing and Mitigation Strategies on Particle Exposures in School Environments." Presented at the American Association for Aerosol Research (AAAR) Annual Conference, Raleigh, NC, October 4, 2022.

Black, Marilyn, and Debra Harris. "Chemistry 101 for Building Managers." Presented at the 2022 International Facility Management Association (IFMA) Worldwide Workplace, Nashville, TN, September 29, 2022.

Holley Henderson. "Design It Healthy, Keep It Healthy: Strategies to Support Resilient Interiors." Presented at the American Society of Interior Designers (ASID) National Conference, GATHER 2022, Miami, FL, September 22, 2022.

- Black, Marilyn. "Design It Healthy, Keep It Healthy: Strategies to Support Resilient, Healthy Interiors." Presented at the Green CE/Ron Blank Webinar, Virtual, September 20, 2022. <https://www.greence.com/Webinars/Design-It-Healthy-Keep-It-Healthy-Strategies> .
- Wright, Christa. "The Utility of CometChip in Nanogenotoxicological Studies." Presented at the International Conference on Environmental Mutagens (ICEM), 53rd Annual Meeting of the Environmental Mutagenesis and Genomics Society (EGMS), Ottawa, Ontario, August 27, 2022.
- Black, Marilyn and Dwayne Sloan. "Balance between Human Health and Fire Safety in the Built Environment." Presented at the American Home Furnishings Alliance (AHFA) Summit 2022, Colfax, NC, August 18, 2022.
- Black, Marilyn, Debra Harris, Amara Holder, and Birgitte Messerschmidt. "Resiliency, Urban Wildfires, and Materials." Presented at the American Institute of Architects (AIA) Conference on Architecture 2022, Virtual, July 28, 2022.
- Wright, Christa, Aika Davis, Qian Zhang, and Marilyn Black. "Investigating and Mitigating the Health Impacts of 3D Printer Emissions." Presented at 2022 Campus Safety and Environmental Management Association (CSHEMA) National Conference, Scottsdale, AZ, July 8-13, 2022. https://chemicalinsights.org/wp-content/uploads/WRIGHT_CSHEMA_FINAL_JULY-Summary-07.22.pdf
- Black, Marilyn. "Design It Healthy, Build It Healthy, Keep It Healthy: Strategies to Support Resilient, Healthy Interiors." Presented at 2022 Neocon, Virtual, June 13, 2022. https://chemicalinsights.org/wp-content/uploads/Summary-NeoCon2022_Presentation.pdf
- Black, Marilyn and Duane Sloan. "Balance between Human Health and Fire Safety in the Built Environment." Presented at the National Fire Protection Association (NFPA) Conference & Expo, Boston, MA, June 7, 2022.
- Davis, Aika and Qian Zhang. "Pop-up: 3D Printing in Schools "Exposures and Engineering Controls." Presented at American Industrial Hygiene Conference & Expo (AIHce), Nashville, TN, May 23, 2022.
- Black, Marilyn and Holley Henderson. "Specifying Residential Upholstered Furniture to Safeguard Human Health." Professional Development Course presented at the GreenCE, Virtual, May 20, 2022. <https://www.greence.com/Webinars/Specifying-Residential-Upholstered-Furniture>
- Share, Melanie and Holley Henderson. "Achieving Good Indoor Air Quality." Presented at National Science Teaching Association (NSTA) National Conference, Houston, TX, April 1, 2022. https://chemicalinsights.org/wp-content/uploads/NSTA_Final_Presented_040122-Summary.pdf
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