

Sinan Sousan, Ph.D.  
Assistant Professor  
Department of Public Health  
Brody School of Medicine/East Carolina University  
North Carolina Agromedicine Institute  
SOUSANS18@ecu.edu  
252.328.2947  
<https://sites.ecu.edu/aerosol-research-lab/home/>

---

## Education

---

- Postdoctoral Scholar, Occupational and Environmental Health, College of Public Health, The University of Iowa, Iowa City, IA, *July 2018*
  - Doctor of Philosophy, Chemical and Biochemical Engineering, The University of Iowa, Iowa City, IA, *July 2012*
  - Master of Science, Chemical Engineering, The University of Baghdad, Baghdad, Iraq, *June 2000*
  - Bachelor of Science, Chemical Engineering, The University of Baghdad, Baghdad, Iraq, *June 1997*
- 

## Positions and Employment

---

2023-	<i>Co-lead Climate Change and Airborne Contaminants RIG, Center for Human Health and the Environment, North Carolina State University, Raleigh NC</i>
2021-	<i>Adjunct Faculty, East Carolina University, Health Education and Promotion, Greenville, NC</i>
2018-	<i>Assistant Professor, East Carolina University, Department of Public Health, Greenville, NC</i>
2018-	<i>Assistant Professor, North Carolina Agromedicine Institute, Greenville, NC</i>
2014-2018	<i>Postdoctoral Research Scholar, The University of Iowa, Iowa City, IA</i>
2012-2014	<i>Scientific Programmer, Carnegie Institution for Science, Stanford, CA</i>
2007-2012	<i>Graduate Research Assistant, The University of Iowa, Iowa City, IA</i>
2007-2008	<i>Teaching Assistant, The University of Iowa, Iowa City, IA</i>
2000-2007	<i>Assistant Professor, The University of Baghdad, Baghdad, Iraq</i>
2000-2003	<i>Lecturer, The University of Technology, Iraq, Baghdad, Iraq</i>

---

## Awards

---

2023 Friends of ECU Laupus Library for the 2022 Health Sciences Author Recognition Award  
2022 Friends of ECU Laupus Library for the 2021 Health Sciences Author Recognition Award  
2022 ECU Honors College Faculty Mentor Award  
2021 Friends of ECU Laupus Library for the 2020 Health Sciences Author Recognition Award  
2016 American Industrial Hygiene Association Poster Award  
2009 The American Association for Aerosol Research Annual Conference Student Poster Winner  
2007 Fulbright Scholarship Award, T.A./ Research Assistant, Master's in Chemical Engineering

---

**Teaching**


---

**Instructional and Non-Instructional Course Names at ECU****Instructional Courses Taught at ECU (Instructor)**

Semester	Course Prefix	Course Number	Section	Credit Hours	Course Title	No. of Students
Spring 2019	EHST	2110	002	3	Intro Environmental Health Science	59
Spring 2019	EHST	3060	001	4	Environmental Issues in Construction	5
Fall 2019	EHST	3600	001	3	Air Pollution	8
Fall 2019	PUBH	8005	001	3	Advanced Control of Occupational Hazards	1
Fall 2019	PUBH	8005	601	3	Advanced Control of Occupational Hazards	2
Spring 2020	EHST	2110	002	3	Intro Environmental Health Science	56
Spring 2020	EHST	3060	001	4	Environmental Issues in Construction	7
Summer 2020	MPH	6010	601	3	Fundamentals of Environmental Health	23
Fall 2020	EHST	3600	001	3	Air Pollution	8
Spring 2021	PUBH	8003	601	3	Issues and Case Studies in Occupational Medicine	7
Spring 2021	EHST	2110	604	3	Intro Environmental Health Science	58

**Sinan Sousan (Spring 2024)**

Spring 2021	EHST	3060	001	4	Environmental Issues in Construction	5
Fall 2021	PUBH	8005	001	3	Advanced Control of Occupational Hazards	1
Fall 2021	PUBH	8005	601	3	Advanced Control of Occupational Hazards	5
Spring 2022	PUBH	8003	601	3	Issues and Case Studies in Occupational Medicine	5
Summer 2022	MPH	6010	601C	3	Fund of Environmental Health	19
Fall 2022	PUBH	8005	601	3	Advanced Control of Occupational Hazards	4
Spring 2023	PUBH	8003	601	3	Issues and Case Studies in Occupational Medicine	4
Spring 2023	MPH	6010	601	3	Fund of Environmental Health	15
Fall 2023	PUBH	8005	601	3	Advanced Control of Occupational Hazards	1
Fall 2023	EHST	2110	005	3	Intro Environmental Hlth Scie	40
Spring 2024	PUBH	8003	601	3	Issues and Case Studies in Occupational Medicine	1
Spring 2024	MPH	6010	601	3	Fund of Environmental Health	18

Sinan Sousan (Spring 2024)

Non-Instructional (Mentorship) Courses Taught at ECU (Instructor)

Semester	Course Prefix	Course Number	Section	Credit Hours	Course Title	No. of Students
Spring 2019	EHST	6210	602	1	Topics in Environmental Health and Safety	1
Spring 2019	MPH	6992	011	1	MPH Professional Paper	1
Fall 2019	EHST	6220	602	2	Topics in Environmental Health and Safety	1
Fall 2019	EHST	6210	001	1	Topics in Environmental Health and Safety	1
Fall 2019	MPH	6991	611	1	MPH Professional Paper	1
Spring 2020	MPH	6992	011	1	MPH Professional Paper	1
Spring 2020	EHST	6990	600	3	Directed Graduate Research Project	1
Spring 2020	EHST	6220	0020	2	Topics in Environmental Health and Safety	1
Fall 2020	MPH	6991	002	1	MPH Professional Paper	1
Fall 2020	EHST	7000	001	3	Thesis	1
Fall 2020	EHST	6210	001	1	Topics in Environmental Health and Safety	1
Spring 2021	PUBH	8684	605	5	Field Practicum	2
Spring 2021	MPH	6992	611	1	MPH Professional Paper	1

**Sinan Sousan (Spring 2024)**

Spring 2021	EHST	6220	606	2	Topics in Environmental Health and Safety	2
Spring 2021	EHST	6210	606	1	Topics in Environmental Health and Safety	1
Spring 2021	EHST	3501	001	2	Problems in Environmental Health	1
Fall 2021	EHST	6210	604	1	Topics in Environmental Health and Safe	1
Fall 2021	EHST	6220	604	2	Topics in Environ Health and Safety	1
Fall 2021	EHST	7000	002	3	Thesis	1
Fall 2021	HLTH	4500	006	1	Independent Study	3
Fall 2021	HLTH	4501	006	2	Independent Study	3
Fall 2021	HNRS	4500	019	3	Senior Honors Project I	1
Fall 2021	HNRS	4500	020	3	Senior Honors Project I	1
Spring 2022	EHST	6990	602	3	Directed Graduate Res Project	1
Spring 2022	HNRS	4550	001	3	Senior Honors Project II	2
Spring 2022	HNRS	4550	022	3	Senior Honors Project II	1
Spring 2022	HNRS	4550	023	3	Senior Honors Project II	1
Spring 2022	HNRS	4550	024	3	Senior Honors Project II	1
Summer 2022	PUBH	8684	602C	5	Field Practicum	1
Summer 2022	MPH	6991	608C	2	MPH Professional Paper	1
Summer 2022	MPH	6010	601C	3	Fund of Environmental Health	19

**Sinan Sousan (Spring 2024)**

Fall 2022	MPH	6992	611	1	MPH Professional Paper	2
Fall 2022	HNRS	4500	020	3	Senior Honors Project I	2
Spring 2023	MPH	6991	608	2	MPH Professional Paper	1
Spring 2023	PUBH	9000	607	5	Dissertation Research	1
Summer 2023	HNRS	4103	001A	3	Independent Study	1
Summer 2023	MPH	6992	611	1	MPH Professional Paper	1
Summer 2023	MPH	6991	611	2	MPH Professional Paper	2
Summer 2023	PUBH	9000	606C	12	Dissertation Research	1
Fall 2023	MPH	6992	611	1	Professional Paper	1
Fall 2023	DrPH	9000	604	12	Dissertation Research	2
Spring 2024	HNRS	4500	022	3	Senior Honors Project I	3
Spring 2024	HNRS	4550	005	3	Senior Honors Project II	2
Spring 2024	HNRS	4550	024	3	Senior Honors Project II	1
Spring 2024	DrPH	9000	607	12	Dissertation Research	2
Spring 2024	MPH	6991	608	2	Professional Paper	1

**Guest Lecturer**

Semester	Course Prefix	Course Number	Course Title
Fall 2020	ENVE	3303	Air Quality Engineering
Fall 2021	ENVE	3303	Air Quality Engineering
Fall 2022	ENVE	3303	Air Quality Engineering
Spring 2020	PUBH	8110	Emerging Issues in Environmental and Occupational Health Class

## Sinan Sousan (Spring 2024)

### Course Creation

- PUBH 8003 - Issues and Case Studies in Occupational Medicine, Spring 2021
- PUBH 8005 - Advanced Control of Occupational Hazards, Fall 2019

### Courses Taught Before ECU

Semester	Role	Course Prefix	Course Number	Section
Fall 2000-Spring 2001	Instructor	University of Baghdad	Unit Operations Laboratory	150
Fall 2000-Spring 2001	Instructor	University of Technology	Unit Operations Laboratory	100
Fall 2000-Spring 2001	Instructor	University of Technology	Fluid Flow Laboratory	100
Fall 2001-Spring 2002	Teaching Assistant	University of Baghdad	Mass Transfer Operations	150
Fall 2001-Spring 2002	Instructor	University of Baghdad	Programming for Chemical Engineers Laboratory	150
Fall 2001-Spring 2002	Instructor	University of Technology	Unit Operations Laboratory	100
Fall 2001-Spring 2002	Instructor	University of Technology	Fluid Flow Laboratory	100
Fall 2002-Spring 2003	Teaching Assistant	University of Baghdad	Thermodynamics for Chemical Engineers	150
Fall 2002-Spring 2003	Instructor	University of Baghdad	Programming for Chemical Engineers Laboratory	150
Fall 2002-Spring 2003	Instructor	University of Technology	Programming for Chemical Engineers	100
Fall 2002-Spring 2003	Instructor	University of Technology	Unit Operations Laboratory	100
Fall 2002-Spring 2003	Instructor	University of Technology	Fluid Flow Laboratory	100

**Sinan Sousan (Spring 2024)**

Fall 2003- Spring 2004	Instructor	University of Baghdad	Programming for Chemical Engineers	150
Fall 2003- Spring 2004	Instructor	University of Baghdad	Programming for Chemical Engineers Laboratory	150
Fall 2004- Spring 2005	Instructor	University of Baghdad	Programming for Chemical Engineers	150
Fall 2004- Spring 2005	Instructor	University of Baghdad	Programming for Chemical Engineers Laboratory	150
Fall 2005- Spring 2006	Instructor	University of Baghdad	Programming for Chemical Engineers	150
Fall 2005- Spring 2006	Instructor	University of Baghdad	Programming for Chemical Engineers Laboratory	150
Fall 2006- Spring 2007	Instructor	University of Baghdad	Programming for Chemical Engineers	150
Fall 2006- Spring 2007	Instructor	University of Baghdad	Programming for Chemical Engineers Laboratory	150
Fall 2007	Teaching Assistant	University of Iowa	Thermodynamic s for Engineers	200
Fall 2008	Teaching Assistant	University of Iowa	Fluid Flow for Chemical Engineers	50

**Guest Lecturer Before ECU**

<b>Semester</b>	<b>Course Prefix</b>	<b>Course Number</b>
Fall 2014	University of Iowa	Aerosol Technology
Fall 2016	University of Iowa	Aerosol Technology



---

**Student Advising and Mentoring (Role in-between parentheses)**

---

**Graduate Students**

**Dr.PH Dissertation**

1. Aaliysha Brown (Fall 2023 – Current, Advisor): Annual Evaluation and Machine Learning Calibration of Low-cost Sensors and Monitors
2. Dekoda Murphy (Spring 2023 - Current, Advisor): Effects of Lockdown on the Air Quality of the Three Most Populated Cities in North Carolina During Covid-19 Pandemic

**MPH ProPaper**

1. Andrew Urbanyi (Fall 2024 – Summer 2024, Advisor): Electronic Cigarette Secondhand Aerosol Effects on Children: A Literature Review.
2. Nicole Bertges (Summer 2023 – Fall 2023, Advisor): Examination of Factors that Impact Respirator Purchase and Usage.
3. Jane Blackerby (Spring 2023 – Summer 2023, Advisor): Evaluation of the MiniWRAS spectrometer compared to the reference SMPS and APS aerosol monitors.
4. Austin Close (Fall 2022 – Spring 2023, Advisor): Effects of E-Cigarette Liquid Ratios on the Gravimetric Filter Correction Factors and Real-Time Measurements.
5. Ashley Lewis (Fall 2022 – Spring 2023, Advisor): Benefits and Economical Impacts of Swine Lagoon Covers.
6. Justine Olegario (Fall 2019 – Spring 2020, Advisor): Evaluation of Low-Cost Optical Particle Counters for Agricultural Exposure Measurements.
7. Constantine Unanka (Fall 2019 – Fall 2020, Advisor): Determination of Breakthrough Time for Combination Respirator Filter/Cartridges with Dimethoate Pesticide: A Methodology Study

**MSEH Thesis**

1. Bridget Angol (Fall 2022- Spring 2024, Committee Co-Chair): Comparison between WBGT App Prototype and WBGT Monitor to Assess Heat Stress Risk in Groundskeeping in an Eastern North Carolina University Setting.
2. Dillon Streuber (Fall 2020 – Fall 2021, Advisor, Chair): A user-friendly and low-cost portable air pollution sensor for community-engaged research on environmental health disparities.
3. Nana Owusu Solar (Fall 2020- Spring 2022, Committee Co-Chair): Ultraviolet (UV) Radiation Exposure in an Eastern North Carolina Outdoor Working Environment During Cold Months.
4. Swastika Regmi (Spring 2020- Fall 2020, Advisor, Chair): Evaluation of low-cost optical particle counters for environmental and occupational exposures.

## **Sinan Sousan (Spring 2024)**

### **MSEH ProPaper**

1. Justin Kerbow (Spring 2021 – Fall 2021, Advisor): Industrial lead air pollution and its effects on child development.
2. Constantine Unanka (Spring 2019 – sPRING 2020, Co-Advisor): Assessment of Breakthrough Occurrence in Respirator Filter Cartridge using Dimethoate.

### **Graduate Assistant**

1. Crystal Daily (Fall 2022 – Spring 2023): Evaluation of the MiniWRAS spectrometer compared to the reference SMPS and APS aerosol monitors.
2. Trisha Sadashiva Shetty (Fall 2018 – Spring 2019, Mentor): Development of an operational low-cost sensor using a microcomputer.
3. Neil Henry (Fall 2018, Mentor): Evaluating environmental exposure for underground fuel storage tanks.

### **Undergraduate Students**

#### **Signature Honors Project Thesis**

1. Gabriela Perez and Emma Piner (Fall 2023 - Spring 2024, Thesis Advisor): The Effects of Power Settings and Liquid Flavors on the Gravimetric Filter Correction Factors and Real-Time Measurements
2. Daniel Walker and Amelia Tart (Fall 2023 - Spring 2024, Thesis Advisor): The Effects of Commercial Grade E-Cigarette Chemical Ratios and Nicotine Strength on the Gravimetric Filter Correction Factors and Real-Time Measurements
3. Michael Brannin (Fall 2023 - Spring 2024, Thesis Advisor): Spring Evaluation and Calibration of Low-Cost Aerosol Sensors.
4. Will Murray (Spring 2023, Thesis Advisor): Student Assessment of PM<sub>2.5</sub> Concentration at ECU Transit Bus Stops Using a Low-Cost Aerosol Monitor.
5. Neha Joseph and Joanna Mathew (Fall 2022- Spring 2023, Thesis Advisor): Spring Evaluation and Calibration of Low-Cost Aerosol Sensors.
6. Trey Mooring and Sarah Fresquez (Fall 2021- Spring 2022, Thesis Advisor): Electronic cigarette use inside of vehicles and associated secondhand and thirdhand exposures.
7. Marina Boatman and Lauren Johansen (Fall 2021- Spring 2022, Thesis Advisor): Fall HVAC Sampling and Detection of COVID-19.
8. Omar Chaaban (Fall 2021- Spring 2022, Thesis Advisor): Measuring the Filtration Efficiency of the Best-Selling Alternative Masks on Amazon.com.

#### **Engineering Capstone Project**

1. Jacob Sanders, David Massey, Shane Rouse, Matthew Stengrim (Fall 2022-Spring 2023, Mentor) RGB Based Aerosol Monitor

## Sinan Sousan (Spring 2024)

### Research Assistant

1. Karrington O'Rourke (Summer 2023, Mentor): Summer Evaluation and Calibration of Low-Cost Aerosol Sensors.
2. Sarah Fresquez and Nathaniel Batts (Summer 2022, Mentor) Electronic cigarette use inside of vehicles and associated secondhand and thirdhand exposures.
3. Vivien Coombs (Spring 2022, Mentor): Electronic cigarette use inside of vehicles and associated secondhand and thirdhand exposures.
4. Will Shingleton and Meaghan Haley (Fall 2020- Spring 2021, Mentor): Electronic cigarette use inside of vehicles and associated secondhand and thirdhand exposures.
5. Kathryn Outlaw and Sydney Williams (Fall 2020- Spring 2021, Mentor): Spring HVAC Sampling and detection of COVID-19.
6. Jessica McKoy (Fall 2020- Spring 2021, Mentor): Evaluating low-cost sensors in environmental settings.

---

### Patents, Peer-Review Publications, Book Chapters and Reports

---

#### Patents and Intellectual Property (IP)

##### 2023

1. Stephanie Richards and **Sinan Sousan**, Wind Tunnel for Assessment of Insecticides. Fall 2023. Provisional Patent US Application 63/588137.
2. Jo Anne Balanay and **Sinan Sousan**, "Temper": A WBGT-based heat stress assessment web app prototype. Summer 2023. IP2402 and technology ID TT2402.

#### Peer-Review Publications (Published at ECU = 24) (\*Student led publication-senior author, total at ECU = 4)

##### 2023

1. **Sousan, S.**, Boatman, M., Johansen, L., Fan, M., & Roper, R. L. (2024). Comparing and validating air sampling methods for SARS-CoV-2 detection in HVAC ducts of student dorms. *Environmental Pollution*, 343, 123164. <https://doi.org/https://doi.org/10.1016/j.envpol.2023.123164>
2. Owusu, N.-O., S. **Sousan**, S. L. Richards, J. A. G. Balanay. Occupational exposure to solar ultraviolet radiation in an eastern North Carolina university outdoor setting during the four seasons. *Journal of Occupational and Environmental Hygiene*:1-9. doi: 10.1080/15459624.2023.2264331
3. **Sousan, S.**, Mooring, R., Fresquez, S., Park, Y. M., Coombs, V., Bertges, N., Soule, E. K. (2023). Use of real-time monitors to evaluate the potential exposure of secondhand electronic cigarette particulate matter inside vehicles. *Environmental Pollution*, 122480. doi:<https://doi.org/10.1016/j.envpol.2023.122480>
4. **Sousan S**, Anthony TR, Altmaier R, Gibbs J, Nonnenmann M. Use of prototype side stream filtration system to control dust levels in a commercial swine farrowing building. *Journal of Occupational and Environmental Hygiene*. 2023 Aug 15:1-16. <https://doi:10.1080/15459624.2023.2247457>

## Sinan Sousan (Spring 2024)

5. \*Close, A., Blackerby, J., Tunnell, H., Pender, J., Soule, E., & **Sousan, S.** (2023). Effects of E-Cigarette Liquid Ratios on the Gravimetric Filter Correction Factors and Real-Time Measurements. *Aerosol and Air Quality Research*, 23, 230011. <https://doi.org/10.4209/aaqr.230011>
6. Soule, E. K., **Sousan, S.**, Pender, J., Thomas, A., & Patel, N. (2023). Electronic cigarette use and cigarette smoking in vehicles among adults who use electronic cigarettes and cigarettes in the USA. *Tobacco Control*. <http://dx.doi.org/10.1136/tc-2022-057898>
7. Soule EK, **Sousan S**, Pender J, Thomas L, Gold E, Fresquez S, et al. Secondhand electronic cigarette aerosol in vehicles impacts indoor air quality. *Drug and Alcohol Dependence*. 2023;110889. <https://doi.org/10.1016/j.drugalcdep.2023.110889>.
8. **Sousan S**, Wu Q, Park YM, et al. 2023. Laboratory Determination of Gravimetric Correction Factors for Real-time Area Measurements of Electronic Cigarette Aerosols: Part 2. *Journal of Aerosol Science and Technology*. <https://doi.org/10.1080/02786826.2022.2047152>

## 2022

9. **Sousan S**, Streuber D, Park YM, Coombs V, Pender JE, Soule EK. (2022). Evaluation of low-cost aerosol and gas sensors for real-time measurements of electronic cigarette exposure. *Aerosol Science and Technology*. 2023;57:153-164. <https://doi.org/10.1080/02786826.2022.2154192>
10. Park YM, Chavez D, **Sousan S**, Figueroa-Bernal N, Alvarez JR, Rocha-Peralta J. 2022. Personal Exposure Monitoring Using GPS-Enabled Portable Air Pollution Sensors: A Strategy to Promote Citizen Awareness and Behavioral Changes Regarding Indoor and Outdoor Air Pollution. *Journal of Exposure Science and Environmental Epidemiology*. <https://doi.org/10.1038/s41370-022-00515-9>
11. \*Chaaban O, Balanay JAG, **Sousan S**. 2022. Assessment of best-selling respirators and masks: Do we have acceptable respiratory protection for the next pandemic? *American Journal of Infection Control*. 2022;1-8. <https://doi.org/10.1016/j.ajic.2022.06.024>
12. \*Streuber D, Park YM, **Sousan S**. 2022. Laboratory and Field Evaluations of the GeoAir2 Air Quality Monitor for Use in Indoor Environments. *Aerosol and Air Quality Research*. 2022;22:220119. <https://doi.org/10.4209/aaqr.220119>
13. Soule, E.K., **Sousan, S.**, Streuber, D., Fresquez, S.E., Mooring, R., Salman, R., Talih, S., Pender, J. (2022). Increased JUUL Emissions from Initial Puffs after Removing and Reinserting Pod. *Chemical Research in Toxicology*. <https://doi.org/10.1021/acs.chemrestox.2c00017>
14. **Sousan, S.**, Pender, J., Streuber, D., Haley, M., Shingleton, W., Soule, E. (2022). Laboratory Determination of Gravimetric Correction Factors for Real-time Area Measurements of Electronic Cigarette Aerosols. *Aerosol Science and Technology*, 1-17. <https://doi.org/10.1080/02786826.2022.2047152>

## 2021

15. **Sousan, S.**, Fan, M., Outlaw, K., Williams, S., Roper, R.L. (2022). SARS-CoV-2 Detection in air samples from inside heating, ventilation, and air conditioning (HVAC) systems- COVID surveillance in student dorms. *American Journal of Infection Control* 50, 330-335. <https://doi.org/10.1016/j.ajic.2021.10.009>

## Sinan Sousan (Spring 2024)

16. **Sousan, S.**, G. Iverson, C. Humphrey, A. Lewis, D. Streuber and L. Richardson (2021). "High-frequency assessment of air and water quality at a concentration animal feeding operation during wastewater application to spray fields." *Environ Pollut* 288: 117801.
17. **Sousan, S.**, S. Regmi and Y. M. Park (2021). "Laboratory Evaluation of Low-Cost Optical Particle Counters for Environmental and Occupational Exposures." *Sensors* 21(12): 4146.
18. Park, Y. M., **Sousan S**, D. Streuber and K. Zhao (2021). "GeoAir—A Novel Portable, GPS-Enabled, Low-Cost Air-Pollution Sensor: Design Strategies to Facilitate Citizen Science Research and Geospatial Assessments of Personal Exposure." *Sensors* 21(11): 3761.
19. \*Olegario JM, Regmi S, **Sousan S**. Evaluation of Low-Cost Optical Particle Counters for Agricultural Exposure Measurements. *Applied Engineering in Agriculture*. 2021;37(1):113-122. doi:<https://doi.org/10.13031/aea.14091>
20. **Sousan S**, Garcia N, White A, Balanay JA. Filtration efficiency of surgical sterilization fabric for respiratory protection during COVID-19 pandemic. *American Journal of Infection Control*. 2021;49(1):1-7. doi:10.1016/j.ajic.2020.11.005

## 2020

21. Zuidema C, Stebounova LV, **Sousan S**, et al. Estimating personal exposures from a multi-hazard sensor network. *Journal of Exposure Science & Environmental Epidemiology*. 2020/11/01 2020;30(6):1013-1022. doi:10.1038/s41370-019-0146-1

## 2019

22. Zuidema C, **Sousan S**, Stebounova LV, et al. Mapping occupational hazards with a multi-sensor network in a heavy-vehicle manufacturing facility. *Annals of work exposures and health*. 2019;63(3):280-293
23. Zuidema C, Stebounova LV, **Sousan S**, Thomas G, Koehler K, Peters TM. Sources of error and variability in particulate matter sensor network measurements. *Journal of Occupational and Environmental Hygiene*. 2019/08/03 2019;16(8):564-574. doi:10.1080/15459624.2019.1628965

## 2018

24. **Sousan S**, Gray A, Zuidema C, et al. Sensor Selection to Improve Estimates of Particulate Matter Concentration from a Low-Cost Network. *Sensors*. 2018;18(9):3008.

## Before ECU

25. Afshar-Mohajer N, Zuidema C, **Sousan S**, et al. Evaluation of low-cost electro-chemical sensors for environmental monitoring of ozone, nitrogen dioxide, and carbon monoxide. *Journal of Occupational and Environmental Hygiene*. 2018/02/01 2018;15(2):87-98. doi:10.1080/15459624.2017.1388918
26. Hallett L, Tatum M, Thomas G, **Sousan S**, Koehler K, Peters T. An inexpensive sensor for noise. *Journal of Occupational and Environmental Hygiene*. 2018:0-0. doi:10.1080/15459624.2018.1438614
27. Thomas GW, **Sousan S**, Tatum M, et al. Low-Cost, Distributed Environmental Monitors for Factory Worker Health. *Sensors (Basel)*. 2018;18(5):1411. doi:10.3390/s18051411

2017

28. **Sousan S**, Koehler K, Hallett L, Peters TM. Evaluation of consumer monitors to measure particulate matter. *Journal of Aerosol Science*. 2017/05/01/ 2017;107(Supplement C):123-133. doi:https://doi.org/10.1016/j.jaerosci.2017.02.013
29. Halterman A, **Sousan S**, Peters TM. Comparison of Respirable Mass Concentrations Measured by a Personal Dust Monitor and a Personal DataRAM to Gravimetric Measurements. *Annals of Work Exposures and Health*. 2017;62(1):62-71. doi:10.1093/annweh/wxx083
30. Peters TM, O'Shaughnessy PT, Grant R, **Sousan S** et al. Community airborne particulate matter from mining for sand used as hydraulic fracturing proppant. *Sci Total Environ*. 2017;609:1475-1482. doi:10.1016/j.scitotenv.2017.08.006

2016

31. Jones S, Anthony TR, **Sousan S**, Altmaier R, Park JH, Peters TM. Evaluation of a Low-Cost Aerosol Sensor to Assess Dust Concentrations in a Swine Building. *The Annals of occupational hygiene*. 03/04 2016;60(5):597-607. doi:10.1093/annhyg/mew009
32. **Sousan S**, Koehler K, Hallett L, Peters TM. Evaluation of the Alphasense optical particle counter (OPC-N2) and the Grimm portable aerosol spectrometer (PAS-1.108). *Aerosol Science and Technology*. 2016/12/01 2016;50(12):1352-1365. doi:10.1080/02786826.2016.1232859
33. Asner GP, **Sousan S**, Knapp DE, et al. Rapid forest carbon assessments of oceanic islands: a case study of the Hawaiian archipelago. *journal article. Carbon Balance and Management*. January 08 2016;11(1):1. doi:10.1186/s13021-015-0043-4
34. **Sousan S**, Koehler K, Thomas G, et al. Inter-comparison of low-cost sensors for measuring the mass concentration of occupational aerosols. *Aerosol Science and Technology*. 2016/05/03 2016;50(5):462-473. doi:10.1080/02786826.2016.1162901

2012

35. Stanier C, Singh A, Adamski W, **Sousan S** et al. Overview of the LADCO winter nitrate study: hourly ammonia, nitric acid and PM<sub>2.5</sub> composition at an urban and rural site pair during PM<sub>2.5</sub> episodes in the US Great Lakes region. *Atmos Chem Phys*. 2012;12(22):11037-11056.

Book Chapter

2017

1. Selmants PC, Giardina CP, **Sousan S**, et al. Baseline carbon storage and carbon fluxes in terrestrial ecosystems of Hawai'i. Baseline and projected future carbon storage and carbon fluxes in ecosystems of Hawai'i US Geological Survey Professional Paper 1834 Reston, VA: US Department of the Interior, US Geological Survey: 75-87 Chapter 6. 2017;1834:75-87.

## Reports

### 2004

1. The High-Resolution Carbon Geography of Peru Carnegie Airborne Observatory and The Ministry of Environment of Perú. Asner, Greg; Roberta, E. Martin; Raul Tupayachi; Christopher B. Anderson; Joseph Mascaro; **Sinan Sousan**; Mark Higgins; William Farfan; Miles R. Silman; William Augusto Llactayo León; Adrian Fernando Neyra Palomino. A Collaborative Report of the Carnegie Airborne Observatory and the Ministry of Environment of Perú, 2014.

### 2009

2. Episodic Air Pollution in Wisconsin (LADCO Winter Nitrate Study) and Georgia (SEARCH Network) During Jan.-Mar., 2009. Report Prepared for the Lake Michigan Air Directors Consortium. Baek, J.; Carmichael, G.; Lee, S.; Oleson, J.; Riemer, N.; Rohlf, T.; **Sousan, S.**; Spak, S.; Stanier, C., Lake Michigan Air Directors Consortium, 2009, 15
3. Understanding Episodes of High Airborne Particulate Matter in Iowa. Bender, A., Carmichael, G., Beranek-Collins, A., Brown, M., Holloway, T., Jamroensan, A., Lee, S.-R., Marrapu, P., Pettibone, A., **Sousan, S.**, Spak, S., Stanier, C., A report commissioned by the Bi-State Regional Commission, 2009

---

## Research Funding

---

### Ongoing Funding Support (total = 5)

1. **Establishing Airborne Contaminant Exposure Laboratory at Brody School of Medicine, Fall 2023-Current**  
Grantor: Brody School of Medicine  
Amount: \$321,151  
Role: PI
2. **Wind tunnel development for pesticide applications, Fall 2023-Current**  
Grantor: ECU Office of Technology Transfer - NSF-funded  
Amount: \$5,000  
Role: Co-PI
3. **WBGT-based Heat Stress Assessment Mobile Application, Fall 2023-Current**  
Grantor: The American Industrial Hygiene Association  
Amount: \$26,834  
Role: Co-PI
4. **The Effects of Power Settings and Liquid Flavors on the Gravimetric Filter Correction Factors and Real-Time Measurements, Fall 2023-Current**  
Grantor: ECU Undergraduate Research & Creative Activity (URCA) Award  
Amount: \$1,724  
Role: Mentor
5. **The Effects of Commercial Grade E-Cigarette Chemical Ratios and Nicotine Strength on the Gravimetric Filter Correction Factors and Real-Time Measurements, Fall 2023-Current**  
Grantor: ECU Undergraduate Research & Creative Activity (URCA) Award

## **Sinan Sousan (Spring 2024)**

Amount: \$1,954

Role: Mentor

## **Pending (total = 4)**

### **1. Low-cost, disaster-resilient, self-deployable, networked solution for community monitoring of air quality, Spring 2023**

Grantor: National Institute of Environmental Health Sciences (R21)

Amount: \$275,000

Role: Co-PI

### **2. Comparison Of Bottle Bioassay, Wind Tunnel, And Field Trial For Assessment Of Insecticide Efficacy Against Mosquitoes, Spring 2024**

Grantor: North Carolina Pesticide Environmental Trust Fund

Amount: \$30,590

Role: Co-I

### **3. Track 1 Acquisition of a Raman Spectroscopy System to Advance Frontier, Multidisciplinary Basic and Applied Research, Teaching, and Training in STEM, Fall 2023**

Grantor: National Science Foundation - MRI

Amount: \$1,033,245

Role: Co-PI

### **4. Development of a novel compact wind tunnel for testing formulated products against mosquitoes and other insects, Fall 2023**

Grantor: North Carolina Biotechnology Center

Amount: \$27,500

Role: Co-I

## **Previous Funding Support (total = 12)**

### **1. Insecticide resistance in NC mosquitoes, Fall 2022 -Summer 2023**

Grantor: North Carolina Department of Health and Human Services

Amount: \$30,000

Role: Co-I

### **2. Environmental Assessment of PM<sub>2.5</sub> Concentration at ECU Transit Bus Stops using a Low-Cost Aerosol Monitor, Spring 2023**

Grantor: ECU Undergraduate Research & Creative Activity (URCA) Award

Amount: \$1,768

Role: Mentor

### **3. Environmental Evaluation and Calibration of Low-Cost Aerosol Sensors, Fall 2022-Spring 2023**

Grantor: ECU Undergraduate Research & Creative Activity (URCA) Award

Amount: \$2,111

Role: Mentor



**4. Detecting SARS-CoV-2 in Occupational Settings, Fall 2021-Spring 2022**

Grantor: ECU Undergraduate Research & Creative Activity (URCA) Award  
Amount: \$2,500  
Role: Co-Mentor

**5. Electronic cigarette use inside of vehicles and associated secondhand and thirdhand exposures (Soule), 8/20-8/23**

Grantor: National Institute of Environmental Health Sciences (R15)  
Amount: \$439,844  
Role: Co-I

**6. A user-friendly and low-cost portable air pollution sensor for community-engaged research on environmental health disparities (Park), 8/20-8/21**

Grantor: NCSU Center for Human Health and the Environment  
Amount: \$31,000  
Role: Co-I

**7. WBGT Heat Stress Risk App (Balanay), Spring 2021**

Grantor: ECU Office of Technology Transfer - NSF-funded  
Amount: \$3,000  
Role: Co-PI

**8. HVAC Sampling and detection of COVID-19 (Sousan), Spring 2021**

Grantor: CARES Act Funding  
Amount: \$29,877  
Role: PI

**9. Team Science to Support Sustainable Animal Agriculture in North Carolina (Iverson), 8/19-5/21**

Grantor: UNC System Interdisciplinary Project Grant program  
Amount: \$55,000  
Role: Co-Investigator

**10. PPE Innovation N95 Project, (Sousan), 3/20-12/20**

Grantor: CARES Act Funding  
Amount: \$202,200  
Role: PI

**11. Nex-CaFi (Sousan), Fall 2018**

Grantor: ECU Office of Technology Transfer - NSF-funded  
Amount: \$3,000  
Role: PI

**12. Low-cost Sensors in Agricultural Settings (Sousan), 8/18-8/21**

Grantor: Start-up proposal for new faculty funded by ECU  
Amount: \$141,067

## Sinan Sousan (Spring 2024)

Role: PI

### **Before ECU**

#### **13. Air Quality Improvements in Livestock Production Buildings (Nonnenmann), 9/17-8/18**

Grantor: CDC/NIOSH Grant U54 OH007548

Amount: \$1,372,500

Role: Researcher

#### **14. An Inexpensive Monitoring Network to Assess Workplace Exposure (Koehler), 8/14-12/17**

Grantor: US DHHS/CDC/NIOSH (R01 OH010533)

Amount: \$1,111,000

Role: Researcher

#### **15. A low-Cost Aerosol Sensing Estimator for Assessing Aerosol Exposure (Sousan), 7/15-6/16**

Grantor: CHEEC Seed Grant, (18018211)

Amount: \$30,000 (2015.07.01-2016.06.30)

Role: PI

### **Projects Not Funded (total = 19)**

#### **1. Comparison of bottle bioassay and novel compact wind tunnel device exposure methods for assessment of insecticide resistance in mosquitoes, Spring 2023**

Grantor: The American Mosquito Control Association Research

Amount: \$978,053

Role: Co-I

#### **2. Estimating core body temperature using physiological and environmental factors with a random forest regression model, Spring 2023**

Grantor: National Institutes of Health (R15)

Amount: \$275,000

Role: PI

#### **3. Low-cost, disaster-resilient, self-deployable, networked solution for community monitoring of air quality, Fall 2022**

Grantor: NCSU Center for Human Health and the Environment

Amount: **\$25,000**

Role: PI

#### **4. The Effects of Changing the Power on Electronic Cigarettes, Spring 2022**

Grantor: ECU Undergraduate Research & Creative Activity (URCA) Award

Amount: \$1,750

Role: Mentor

**Sinan Sousan (Spring 2024)**

**5. N-95 Surrogate Respirators, Spring 2022**

Grantor: ECU Undergraduate Research & Creative Activity (URCA) Award

Amount: \$1,217

Role: Mentor

**6. Interdisciplinary Analysis of a Next Generation Prosthetic Socket for Lower-Leg Amputees made with a Bio-Resin and Hemp Fiber Composite (Bio-H), Fall 2020**

Grantor: National Institutes of Health (R03)

Amount: \$499,999

Role: Co-I

**7. A Pilot Study to Evaluate the Real-World Applicability and Efficacy of Wearable Sensors in Patients with Severe Allergic Asthma, Fall 2020**

Grantor: NCSU Center for Human Health and the Environment

Amount: **\$25,000**

Role: PI

**8. Evaluating the Environmental and Social Benefits of Alternative Swine Waste Management: A Demonstration Project, Fall 2020**

Grantor: North Carolina Department of Justice

Amount: **\$180,557**

Role: Co-I

**9. Environmental Education on Hurricane Preparedness and Response for Community Stakeholders in Eastern NC, Fall 2020**

Grantor: Environmental Protection Agency

Amount: **\$99,999**

Role: Co-I

**10. AI-powered Precision Agriculture (AIPA) for Horticulture Crops, Summer 2020**

Grantor: National Science Foundation

Amount: **\$499,999**

Role: Co-I

**11. Determination of End-of-Service Lives of Respirator Cartridges and Filters for Pesticides Used in Agricultural Settings for Different Environmental Conditions, Spring 2020**

Grantor: National Institutes of Health (R03)

Amount: **\$100,000**

Role: PI

**12. Real-Time Medical Asthma Predictor (RTMAP), Spring 2020**

Grantor: Brody Brothers Endowment Fund

Amount: **\$54,670**

Role: PI

**13. Developing an E-Cigarette Portable Sensing System (ECPSS) for Detecting Levels of Toxic Airborne Exposure, Spring 2020**

Grantor: NCSU Center for Human Health and the Environment

Amount: **\$25,000**

Role: Co-I

**14. Determination of End-of-Service Lives of Respirator Cartridges and Filters for Pesticides Used in Agricultural Setting at Different Environmental Conditions, Spring 2019**

Grantor: NCSU Center for Human Health and the Environment

Amount: **\$25,000**

Role: PI

**15. Outdoor Exposure Alert Monitor, Fall 2019**

Grantor: Sustainable Nano-Pyrethroid for Zika Control

Amount: **\$25,000**

Role: Co-I

**16. Outdoor Exposure Alert Monitor, Fall 2019**

Grantor: ORAU Ralph E. Powe

Amount: **\$10,000**

Role: PI

**17. Personal Medical Alert System, Summer 2019**

Grantor: North Carolina Biotechnology Center

Amount: **\$25,000**

Role: PI

**18. Nanotechnology-enabled innovative respirator filter/cartridges with extended service life indicator, Spring 2019**

Grantor: North Carolina Biotechnology Center

Amount: **\$23,969**

Role: PI

**19. Exposure Chamber for Testing Lifetime Service for Respirators and Cartridges, Fall 2018**

Grantor: UNC-CH NC Occupational Safety and Health Education and Research Center

Amount: **\$23,969**

Role: PI

Conferences- Local/National:

---

Invited Speaker

**2024**

1. **Sinan Sousan**, Emerging Real-time Low-cost Sensors for Occupational Exposure Monitoring. April 2024. The New York and New Jersey Education and Research Center 44th Annual Scientific Meeting, New York, NY.

Participated Conferences (total at ECU = 50) (\*Student led presentation-senior author, total at ECU = 20)

**2024**

1. **Sinan Sousan**, Marina Boatman, Lauren Johansen, Ming Fan and Rachel L Roper, Validation of SARS-CoV-2 detection and air sampling methods inside the Heating, Ventilation, and Air Conditioning (HVAC) duct in student dorms. Feb 2024, CHHE Pulmonary Research Interest Group Mini-Symposium. Raleigh, NC.
2. **Sinan Sousan**, Ronald Mooring, Sarah Fresquez, Yoo Min Park, Vivien Coombs, Nicole Bertges, Luke Thomas, Emily Gold, Anish Gogineni, Alex Tiet, Jack Pender, Eric K. Soule. Use of Real-Time Monitors to Evaluate the Potential Exposure of Secondhand Electronic Cigarette Particulate Matter Inside Vehicles. Feb 2024, CHHE Pulmonary Research Interest Group Mini-Symposium. Raleigh, NC.
3. **Sinan Sousan**, The Rise of Real-Time Low-cost Sensors for Air Quality Monitoring, Feb 2024. Fifth Annual Love Data Week 2024. Greenville, NC.
4. Eric K. Soule, Jack Pender, **Sinan Sousan**, Heather Tunnell, Luke Thomas, Emily Gold, Alex Tiet, Anish Gogineni, Sarah Fresquez, Ronald Mooring, Vivien Coombs. Chemical depositions associated with electronic cigarette use in vehicles. Feb 2024; Society for Research on Nicotine and Tobacco Annual Meeting, Edinburg, Scotland.

**2023**

5. **Sinan Sousan**, Ronald Mooring, Sarah Fresquez, Yoo Min Park, Vivien Coombs, Nicole Bertges, Luke Thomas, Emily Gold, Anish Gogineni, Alex Tiet, Jack Pender, Eric K. Soule. Use of Real-Time Monitors to Evaluate the Potential Exposure of Secondhand Electronic Cigarette Particulate Matter Inside Vehicles. October 2023. Annual Meeting of American Association for Aerosol Research. Raleigh, NC.
6. \*Austin Close, Jane Blackerby, Heather Tunnell, Jack Pender, Eric Soule, and **Sinan Sousan**. Effects of E-Cigarette Liquid Ratios on the Gravimetric Filter Correction Factors and Real-Time Measurements. October 2023. Annual Meeting of American Association for Aerosol Research. Raleigh, NC.
7. \*Will Murray, Jo Anne G. Balanay and **Sinan Sousan**, Student assessment of PM2.5 concentration at ECU Transit bus stops using a low-cost aerosol monitor. October 2023. Annual Meeting of American Association for Aerosol Research. Raleigh, NC.

## Sinan Sousan (Spring 2024)

8. Eric K. Soule, **Sinan Sousan**, Jack Pender, Emily Gold, Luke Thomas, Anish Gogineni, Alex Tiet, Sarah Fresquez, Ronald Mooring, Vivien Coombs. Secondhand electronic cigarette aerosol in vehicles impacts indoor air quality. October 2023. Annual Meeting of American Association for Aerosol Research. Raleigh, NC.
9. **Sinan Sousan**, Marina Boatman, Lauren Johansen, Ming Fan and Rachel L Roper, Validation of SARS-CoV-2 detection and air sampling methods inside the Heating, Ventilation, and Air Conditioning (HVAC) duct in student dorms. October 2023. Annual Meeting of American Association for Aerosol Research. Raleigh, NC.
10. Kaya Peyton, Avian White, **Sinan Sousan**, Will Murray, Stephanie Richards. Evaluation of wind tunnel for exposure of *Aedes albopictus* and *Culex pipiens/quinqüefasciatus* mosquitoes to Biomist®. August 2023. North Carolina GlaxoSmithKline Foundation STEM Research Program Undergraduate Research Poster Symposium.
11. \*Will Murray, Jo Anne G. Balanay, and **Sinan Sousan**, Student assessment of PM2.5 concentration at ECU Transit bus stops using a low-cost aerosol monitor. April (2023), CHHE Pulmonary Research Interest Group Mini-Symposium 2023. Raleigh, NC.
12. \*Neha Joseph, Joanna Mathew, Colby Sawyer, Ciprian Popoviciu, and **Sinan Sousan**, Spring evaluation and calibration of low-cost aerosol sensors. April (2023), North Carolina Academy of Science Conference. Greenville, NC.
13. \*Will Murray, Jo Anne G. Balanay, and **Sinan Sousan**, Student assessment of PM2.5 concentration at ECU Transit bus stops using a low-cost aerosol monitor. April (2023), North Carolina Academy of Science Conference. Greenville, NC.
14. \*Neha Joseph, Joanna Mathew, Colby Sawyer, Ciprian Popoviciu, and **Sinan Sousan**, Spring evaluation and calibration of low-cost aerosol sensors. April (2023), ECU Research and Creative Achievement Week. Greenville, NC.
15. \*Will Murray, Jo Anne G. Balanay, and **Sinan Sousan**, Student assessment of PM2.5 concentration at ECU Transit bus stops using a low-cost aerosol monitor. April (2023), ECU Research and Creative Achievement Week. Greenville, NC.
16. Eric K. Soule, **Sinan Sousan**, Jack Pender, Emily Gold, Luke Thomas, Anish Gogineni, Alex Tiet, Sarah Fresquez, Ronald Mooring, Vivien Coombs. February (2023). Secondhand electronic cigarette aerosol in vehicles impacts indoor air quality. Society for Research on Nicotine and Tobacco Annual Meeting, San Antonio, TX.

## 2022

17. **Sinan Sousan**, Dillon Streuber, Yoo Min Park, Vivien Coombs, Jack Pender, Eric Soule. Evaluation of Low-cost Aerosol and Gas Sensors for Real-time Measurements of Electronic Cigarette Exposure. October 2022; Annual Meeting of American Association for Aerosol Research. Raleigh, NC.
18. \*Dillon Streuber, Yoo Min Park, **Sinan Sousan**. Laboratory and Field Evaluations of the GeoAir2 Air Quality Monitor for use in Indoor Environments. October 2022; Annual Meeting of American Association for Aerosol Research. Raleigh, NC. Presented by Sinan Sousan
19. **Sinan Sousan**, Ming Fan, Kathryn Outlaw, Sydney Williams, and Rachel Roper. SARS-CoV-2 Detection in Air Samples from Inside Heating, Ventilation, and Air Conditioning (HVAC) Systems-COVID Surveillance in Student Dorms. October 2022; Annual Meeting of American Association for Aerosol Research. Raleigh, NC
20. \*Omar Chaaban, Jo Anne Balanay, **Sinan Sousan**; Filtration Efficiency of Top 10 Best-Selling Adult Masks Compared to the N95 Respirator. October 2022; Annual Meeting of American Association for Aerosol Research. Raleigh, NC. Presented by Sinan Sousan

## Sinan Sousan (Spring 2024)

21. **Sinan Sousan**, Pender, J., Streuber, D., Haley, M. Shingleton, W., Soule, E. (2022). Laboratory quantification of gravimetric correction factors for real-time measurements of electronic cigarette aerosol exposure. October 2022; Annual Meeting of American Association for Aerosol Research. Raleigh, NC
22. Eric K. Soule, **Sinan Sousan**, Dillon Streuber, Sarah Fresquez, Trey Mooring, Rola Salman, Soha Talih, Jack Pender. Increased JUUL emissions from initial puffs after device activation. October 2022; Annual Meeting of American Association for Aerosol Research. Raleigh, NC. Presented by Sinan Sousan.
23. R. Roper, **Sinan Sousan**, M Fan, K Outlaw, S Williams, L Johansen, and M Boatman. SARS-CoV-2 Detection in Air Samples from Inside Heating, Ventilation, and Air Conditioning (HVAC) Systems-COVID Surveillance in Student Dorms. June 2022; American Society for Microbiology Conference, Washington, DC
24. Nanaobaayaa Owusu, **Sinan Sousan**, Stephanie Richards, Jo Anne Balanay. April 2022. Solar Ultraviolet (UV) Radiation Exposure in Outdoor Working Environment During Cold Months. ECU Research and Creative Achievement Week. Greenville, NC.
25. \*Lauren Johansen, Marina Boatman, **Sinan Sousan**, Ming Fan, Rachel Roper; Detection of SARS-CoV-2 in Dorms Through HVAC System. April 2022; Research & Creative Achievement Week, ECU. Greenville, NC.
26. \*Omar Chaaban, Jo Anne Balanay, **Sinan Sousan**; Filtration Efficiency of Top 10 Best-Selling Adult Masks Compared to the N95 Respirator. April 2022; Research & Creative Achievement Week, ECU. Greenville, NC
27. Eric K. Soule, **Sinan Sousan**, Dillon Streuber, Sarah Fresquez, Trey Mooring, Rola Salman, Soha Talih, Jack Pender. Increased JUUL emissions from initial puffs after device activation. April 2022; Research & Creative Achievement Week, ECU. Greenville, NC.
28. **Sinan Sousan**, Pender, J., Streuber, D., Haley, M. Shingleton, W., Soule, E. (2022). Laboratory quantification of gravimetric correction factors for real-time measurements of electronic cigarette aerosol exposure. Society for Research on Nicotine and Tobacco Annual Meeting, Baltimore, MD.
29. Tiet, A., Gogineni, A., Gold, E., **Sinan Sousan**, Pender, J., & Soule, E. (2022). Associations between electronic cigarette use behaviors inside of vehicles, age, and harm perceptions. Society for Research on Nicotine and Tobacco Annual Meeting, Baltimore, MD.
30. Gogineni, A., Tiet, A., Gold, E., **Sinan Sousan**, Pender, J., & Soule, E. (2022). Electronic cigarette users' harm perceptions of secondhand exposure and electronic cigarette use in vehicles with adults and children. Society for Research on Nicotine and Tobacco Annual Meeting, Baltimore, MD.
31. Soule, E., **Sinan Sousan**, Pender, J., Patel, N., Thomas, A. (2022). Electronic cigarette use and combustible tobacco use behaviors inside of vehicles. Research on Nicotine and Tobacco Annual Meeting, Baltimore, MD.
32. Soule, E. **Sinan Sousan**, Streuber, D., Salman, R., Talih, S., Pender, J. (2022). "Real-world" JUUL emissions likely exceed laboratory generated emissions. Society for Research on Nicotine and Tobacco Annual Meeting, Baltimore, MD.
33. Park, Y.M. **Sinan Sousan**, Chavez, D. Streuber, D., Zhao, K., Figueroa-Bernal, N., & Alvarez, J. A novel portable, GPS-enabled, low-cost air-pollution sensor to facilitate citizen science research and geospatial assessments of personal exposure. February 2022; American Association of Geographers Annual Meeting, New York, NY.
34. \*Marina Boatman, Lauren Johansen, Ming Fan, **Sinan Sousan**, and Rachel Roper. Detection of SARS-CoV-2 in Dorm HVAC Systems. February 2022; ECU School of Dental Medicine 7th Annual Celebration of Research and Scholarship. Greenville, NC

## Sinan Sousan (Spring 2024)

35. Eric K. Soule, **Sinan Sousan**, Dillon Streuber, Sarah Fresquez, Trey Mooring, Rola Salman, Soha Talih, Jack Pender. Increased JUUL emissions from initial puffs after device activation. February 2022; ECU School of Dental Medicine 7th Annual Celebration of Research and Scholarship. Greenville, NC.
36. **Sinan Sousan**, Regmi S, Park YM. Laboratory Evaluation of Low-cost Optical Particle Counters for Environmental and Occupational Exposures. October 2021; Annual Meeting of American Association for Aerosol Research. Albuquerque NM.

## 2021

37. **Sinan Sousan**, Regmi S, Park YM. Laboratory Evaluation of Low-cost Optical Particle Counters for Environmental and Occupational Exposures/ 2021. Annual Meeting of American Association for Aerosol Research. Albuquerque NM.
38. **Sinan Sousan**, Iverson G, Humphrey C, Lewis A, Streuber D, Richardson L. Environmental Assessment of Air and Water Quality at a Swine Farm using a Capped Lagoon. 2021; International Society for Agricultural Safety and Health Annual Conference, Virtual.
39. Balanay J, **Sinan Sousan**. Mobile App to Assess WBGT-Heat Stress Risk of Outdoor Workers. 2021; Research & Creative Achievement Week, ECU, Virtual.
40. \*Streuber D, **Sinan Sousan**, Park YM. Calibration and Correction of the SPS30 Low Cost Optical Particle Counter as Part of the GeoAir 2 Platform for Measuring Personal Exposure. 2021; Research & Creative Achievement Week, ECU, Virtual.

## 2020

41. \*Olegario J, Regmi S, **Sinan Sousan**. Evaluation of Low-Cost Optical Particle Counters for Agricultural Exposure Measurements. 2020; Research & Creative Achievement Week, ECU, Virtual.
42. \*Regmi S, **Sinan Sousan**. Evaluation of low-cost optical particle counters for environmental and occupational exposure 2020; Research & Creative Achievement Week, ECU, Virtual.
43. \*Unanka C, **Sinan Sousan**, Balanay JA. Determination of Breakthrough Time for Combination Respirator Filter/Cartridges with Dimethoate Pesticide: A Methodology Study. 2020; Research & Creative Achievement Week, ECU, Virtual.
44. \*Olegario J, Regmi S, **Sinan Sousan**. Evaluation of Low-Cost Optical Particle Counters for Agricultural Exposure Measurements. 2020; International Society for Agricultural Safety and Health Annual Conference, Virtual.
45. \*Olegario J, Regmi S, **Sinan Sousan**. Evaluation of Low-Cost Optical Particle Counters for Agricultural Exposure Measurements. 2020; Annual Meeting of American Association for Aerosol Research, Virtual.
46. \*Olegario J, Regmi S, **Sinan Sousan**. Evaluation of Low-Cost Optical Particle Counters for Agricultural Exposure Measurements. 2020; MPH Poster Presentation, Virtual.

## 2019

47. \*Constantine Unanka, **Sinan Sousan**, Jo Anne Balanay. Determination of Breakthrough Time for Combination Respirator Filter/Cartridges w/ Dimethoate Pesticide: A Methodology Study 2019. MPH Poster Presentation.



## **Sinan Sousan (Spring 2024)**

48. **Sinan Sousan**, Hallett L, Koehler K, Peters TM. Evaluation of Consumer-based Photometers for Measuring Environmental and Occupational Aerosols. 2016; American Industrial Hygiene Conference & Exposition, Baltimore, MD.
49. Nonnenmann M, Anthony T, **Sinan Sousan**, Altmaier R, Gibbs J, Ramirez A. Air Quality in Livestock Production Buildings: Evaluating a Prototype Aerosol Control Technology to Reduce Dust Concentrations in Commercial Swine Farrowing. 2019; International Society for Agricultural Safety and Health Annual Conference, Des Moines, IA.
50. **Sinan Sousan**. Advancements in Exposure Measurements and Low-cost Sensors in Agriculture. 2019; North Carolina Agromedicine Institute - Agricultural Health and Safety Symposium, Raleigh, NC.

## ***Before ECU***

### **2017**

51. Hallett L, **Sinan Sousan**, Tatum M, Thomas GW, Peters TM. Laboratory Evaluation of a Noise Sensor for use in an Inexpensive Sensor Network. 2017; Occupational and Environmental Health Research Week, Iowa City, IA.

### **2016**

52. **Sinan Sousan**, Koehler K, Hallett L, Peters TM. Evaluation of the Alphasense Optical Particle Counter (OPC-N2) and the Grimm Portable Aerosol Spectrometer (PAS-1.108). 2016; Annual Meeting of American Association for Aerosol Research, Portland, OR.

### **2015**

53. **Sinan Sousan**, Koehler K, Thomas G, Park JH, Hillman M, Peters TM. Evaluation of a low-cost direct reading instrument for fine and coarse aerosol particles 2015; Annual Meeting of American Association for Aerosol Research; Minneapolis, MN.

### **2011**

54. **Sinan Sousan**, Baek J, Spak S, et al. Optimizing Data Assimilation Parameters for Improved CMAQ PM2.5 Estimates Over the United States to Inform Epidemiological Studies. presented at: American Geophysical Union; 2011; San Francisco, CA.
55. **Sinan Sousan**, Baek J, Spak S, et al. Optimizing Data Assimilation Parameters for Improved CMAQ PM2.5 Estimates Over the United States to Inform Epidemiological Studies 2011; Annual Meeting of American Association for Aerosol Research; Orland, FL.
56. **Sinan Sousan**, Baek J, Spak S, et al. Optimizing Data Assimilation Parameters for Improved CMAQ PM2.5 Estimates Over the United States to Inform Epidemiological Studies 2011; American Institute of Chemical Engineers; Minneapolis, MN.

### **2010**

57. **Sinan Sousan**, Baek J, Kumar N, et al. Use of Surface Measurements and MODIS Aerosol Optical Depth for Improved Model Based PM2.5 Prediction in the United States. 2010; Community Modeling and Analysis System, Raleigh, NC.

## **Sinan Sousan (Spring 2024)**

58. **Sinan Sousan**, Baek J, Kumar N, et al. Use of Surface Measurements and MODIS Aerosol Optical Depth for Improved Model Based PM2.5 Prediction in the United States. 2010; American Institute of Chemical Engineers, Salt Lake City, UT.

## **2009**

59. **Sinan Sousan**, Kumar N, Spak S, Beranek-Collins A, Carmichael G, Stanier C. Use of Surface Measurements and Modis Aerosol Optical Depth for Improved Model Based PM2.5 Prediction in the United States. 2009; American Institute of Chemical Engineers, Nashville, TN.
60. Stanier C, Bender A, Carmichael G, **Sinan Sousan** et al. Understanding Episodes of High Airborne Particulate Matter in the Upper Midwest. 2009; Annual Meeting of American Association for Aerosol Research; Minneapolis, MN.
61. **Sinan Sousan**, Kumar N, Spak S, Beranek-Collins A, Carmichael G, Stanier C. Use of Surface Measurements and Modis Aerosol Optical Depth for Improved Model Based PM2.5 Prediction in the United States. 2009; Annual Meeting of American Association for Aerosol Research, Minneapolis, MN.

---

## **Service**

---

### **Committee Service**

Fall 2023- DPH Personnel Committee  
Spring 2021- Graduate Council Member at ECU  
Fall 2018- Doctor of Public Health-Environmental and Occupational Health Committee, ECU  
Fall 2018- North Carolina Agromedicine Institute Board of Partners  
Fall 2018- Spring 2023 Vice-Chairs of Diversity and Inclusion Committee, Brody School of Medicine ECU

### **Other Institutional Service Activities:**

Fall 2021-present: Manage DPH Social Media Accounts (Facebook, Instagram, Twitter, LinkedIn) Administrator  
Fall 2019 – present: Provided Recommendations for Undergraduate and Graduate Student  
Fall 2018 – present: Doctorate in Public Health Admissions Reviewer  
Fall 2018 – Fall 2020: Master of Science in Environmental Health Admissions Reviewer  
Judge Fall 2020: Judged Student Poster Competition at AAAR Conference  
Spring 2019 Environmental Health Hiring Committee, ECU

### **Professional Membership**

January 2023- Ongoing: Water Resource Center  
January 2022- Ongoing: Center for Human Health and the Environment  
January 2022- Ongoing: Center for IoT Engineering and Innovation  
Spring 2020- Ongoing: North Carolina Public Health Association  
Spring 2019 – Ongoing: International Society for Agricultural Safety and Health (ISASH)  
Fall 2008 – Ongoing: American Association for Aerosol Research (AAAR)

**Service to Profession**

- JOEH Journal of Occupational and Environmental Hygiene Reviewer Board
- Guest Editor of a Special Issue of the Journal Atmosphere
- MDPI Journal of Sensors Reviewer Board

**Journal manuscripts reviewed (2016-2024):**

<b>Journal</b>	<b>No. of Reviews</b>
○ Aerosol and Air Quality Research	19
○ Journal of Occupational & Environmental Hygiene	13
○ MDPI Sensors	9
○ Aerosol Science & Technology	8
○ Applied Sciences	6
○ International Journal of Environmental Research and Public Health	3
○ International Journal of Mining Science and Technology	3
○ Remote Sensing	2
○ Environmental Science & Technology Letters	2
○ Tobacco Prevention and Cessation	2
○ Annals of Occupational Hygiene	2
○ Occupational and Environmental Hygiene	2
○ PLOS ONE	2
○ Environmental Science & Technology - Air	1
○ Atmospheric Environment	1
○ Sustainable Cities and Society	1
○ Environmental Engineering	1
○ Science of the Total Environment	1
○ Environmental Research	1
○ Aerosol Science	1
○ Environmental Science & Technology	1
○ Atmosphere	1

---

**Recognitions and Media Coverage**

---

1. Environmental Evaluation and Calibration of Low-Cost Aerosol Sensors:  
Two of my Honors students were awarded the Undergraduate Research and Creative Activity Award. The research aims to evaluate a low-cost air quality monitor in environmental settings compared to a reference instrument. The award was highlighted in the Office of Faculty and Leadership Development Newsletter Q4-2022:  
<https://express.adobe.com/page/7Z7y1cEgJxXza/?fbclid=IwAR2zeNwaY5S7Iz6hUAeMrfdeiH955rBKqOTIXnvlSorkZE36Mmv0ygHjrKc>
2. The effectiveness of the Best-Selling Respirators and Masks on Amazon.com

## Sinan Sousan (Spring 2024)

A paper titled “Assessment of best-selling respirators and masks: Do we have acceptable respiratory protection for the next pandemic?” was published in the American Journal of Infection Control. This work was performed in collaboration with Dr. Jo Anne Balanay (Environmental Health Sciences Program) and ECU Public Health, and Honors College graduate Omar Chaaban (lead author). The work evaluates the ten best-selling respirators by the largest online retailer, Amazon.com. The paper introduces grading factors that could interest buyers and influence their decision to purchase respirators, including protection, comfort, and affordability. The following is a list of media coverage:

- The paper was mentioned in First Monday: An update from the Provost (October 2022): <https://express.adobe.com/page/l3GnO0jMfctx3/>
  - We had an audio interview with Talk Like a Pirate ECU program and the podcast was made available in season 3, Episode 1: Best Masks for a Pandemic (September 12, 2022): <https://news.ecu.edu/talk-like-a-pirate/>
  - The paper was covered by ECU news: (September 7, 2022): <https://news.ecu.edu/2022/09/07/mask-breathing-easy/>
3. COVID-19 Airborne Detection Research:
- During Spring 2021, my interdisciplinary project with Dr. Rachel Roper from the department of Microbiology & Immunology was published in the American Journal of Infection Control. Our project was the first to show the possibility of SARS-COV-2 detection by sampling from the HVAC system inside student dorms. The publication was featured in several local and international media outlets. Interviews were conducted and broadcasted over television and radio media outlets. In addition to our very own ECU news outlet. The following is a list of media coverage:
- The Air Conditioning Heating and Refrigeration (ACHR) News (February 26, 2022)
  - <https://www.achrnews.com/articles/146213-university-study-shows-coronavirus-can-be-detected-in-hvac-systems>
  - The East Carolinian news (February 22, 2022)
  - [http://www.piratemedial.com/theeastcarolinian/article\\_33442f94-9456-11ec-9e94-57ea37e4a5f0.html](http://www.piratemedial.com/theeastcarolinian/article_33442f94-9456-11ec-9e94-57ea37e4a5f0.html)
  - PBSNC.org channel (February 11, 2022): [https://www.pbsnc.org/blogs/science/hvac-systems-could-be-the-future-of-detecting-covid19-indoors/?utm\\_source=wordfly&utm\\_medium=email&utm\\_campaign=SciNC\\_Feb18\\_2022&utm\\_content=Blog%3AHVAC%26COVID\\_version\\_A&sourceNumber=](https://www.pbsnc.org/blogs/science/hvac-systems-could-be-the-future-of-detecting-covid19-indoors/?utm_source=wordfly&utm_medium=email&utm_campaign=SciNC_Feb18_2022&utm_content=Blog%3AHVAC%26COVID_version_A&sourceNumber=)
  - Publicradioeast.org Public Radio East (November 12, 2021): <https://www.publicradioeast.org/post/ecu-researchers-discover-new-way-detect-coronavirus-through-ventilation-systems>
  - PHL17 Philadelphia, Pennsylvania news. (November 11, 2021): <https://phl17.com/national-news/online-originals-ecu-researchers-discover-new-way-to-detect-coronavirus-through-building-ventilation-systems/>
  - WRIC 8 local news (November 10, 2021): <https://www.wric.com/health/coronavirus/researchers-discover-new-way-to-detect-coronavirus-through-building-ventilation-systems/>
  - Wavy.com news (November 10, 2021): <https://www.wavy.com/news/north-carolina/east-carolina-university-researchers-discover-new-way-to-detect-coronavirus-through-building-ventilation-systems/>

## Sinan Sousan (Spring 2024)

- ScienceDaily national news website (November 10, 2021): <https://www.sciencedaily.com/releases/2021/11/211110131659.htm>
  - The Daily Reflector local news website (November 10, 2021): [https://www.reflector.com/news/local/breath-of-fresh-air-ecu-research-finds-way-to-detect-covid-19-in-ventilation-systems/article\\_5190cf2a-b640-57e4-942b-5019fe9efe03.html](https://www.reflector.com/news/local/breath-of-fresh-air-ecu-research-finds-way-to-detect-covid-19-in-ventilation-systems/article_5190cf2a-b640-57e4-942b-5019fe9efe03.html)
  - Eurekalert.org website operated by the American Association for the Advancement of Science (November 10, 2021): <https://www.eurekalert.org/news-releases/934450>
  - Scienmag website located in the United Kingdom (November 10, 2021): <https://scienmag.com/airborne-detection/>
  - ECU News (November 9, 2021): <https://news.ecu.edu/2021/11/09/airborne-detection/>
  - WNCT 9 local news (November 9, 2021): <https://www.wnct.com/health/coronavirus/ecu-researchers-discover-new-way-to-detect-coronavirus-through-building-ventilation-systems/>
  - WITN local news (November 9, 2021): <https://www.witn.com/2021/11/10/ecu-researchers-discover-new-way-detect-coronavirus-through-building-ventilation-systems/>
  - WUNC 91.5 (November 1, 2021): <https://www.wunc.org/science-technology/2021-11-01/testing-covid-19-hvac-future-surveillance-testing-east-carolina-ecu>
  - Blue Ridge Public Radio (November 1, 2021): <https://www.bpr.org/post/testing-covid-19-hvac-could-be-future-surveillance-testing#stream/0>
  - WCNC Charlotte local news (October 28, 2021): <https://www.wcnc.com/article/news/health/coronavirus/ecu-researchers-hvac-systems-detect-presence-covid-dorms/275-ed7c8239-0d53-4a48-9076-37ecff0c9747>
  - WRAL local news (October 27, 2021): [https://www.wral.com/new-research-could-help-detect-covid-19-in-closed-indoor-settings/19948005/?ref\\_id=19947893](https://www.wral.com/new-research-could-help-detect-covid-19-in-closed-indoor-settings/19948005/?ref_id=19947893)
4. E-Cigarette Exposure (September 17, 2020):  
In 2020, our NIH R03 proposal was funded with the objective of measuring secondhand and thirdhand electronic cigarettes exposure inside vehicles. The proposal was covered by ECU news: <https://news.ecu.edu/2020/09/17/e-cigarette-exposure/>
5. N95 Surrogate Research (September 03, 2020):  
In 2020, ECU funded several COVID-19 projects through the CARES Act. My project was one of the funded projects with the objective of testing the efficacy of respirators and filters used in the market for respiratory protection. The project was featured by ECU news: <https://news.ecu.edu/2020/09/03/funding-covid-19-research/>