Al Fischer, PhD

Instrumentation Specialist
Western Carolina University
dfischer@wcu.edu

Employment

Western Carolina University
Department of Chemistry and Physics
Cullowhee, NC
Instrumentation Specialist & Instructor (2018-Present)

University of Georgia
Department of Chemistry
Athens, GA
Research and Teaching Assistant (2012-2018)

Hummingbird Scientific
Lacey, WA
Engineering Technician (2011-2012)

Education

University of Georgia
Athens, GA
PhD, Analytical Chemistry (2018)

The Evergreen State College
Olympia, WA
BS, Environmental Chemistry (2011)

Publications

Cheng, Z., K. Atwi, O. Hajj, I. Ijeli, **D.A. Fischer**, G.D. Smith, and R. Saleh (2020) Discrepancies Between Brown Carbon Light-absorption Properties Retrieved from Online and Offline Measurements. *Aerosol Science and Technology* DOI: 10.1080/02786826.2020.1820940 (in press)

Fierce, L., T.B. Onasch, C.D. Cappa, C. Mazzoleni, S. China, J. Bhandari, P. Davidovits, **D.A. Fischer**, T. Helgestad, A.T. Lambe, A.J. Sedlacek III, G.D. Smith, and L. Wolff (2020) Radiative absorption enhancements by black carbon controlled by particle-to-particle heterogeneity in composition. *PNAS*, Volume 117, No. 10, 5196-5203.

Fischer, D.A. and G.D. Smith (2018) Can ozone be used to calibrate aerosol photoacoustic spectrometers? *Atmospheric Measurement Techniques*, Volume 11, No. 12, 6419-6427.

Fischer, D.A. and G.D. Smith (2017) A 4-wavelength, Single-cell Photoacoustic Instrument for Aerosol Absorption. *Aerosol Science and Technology*, Volume 52, No. 4, 393-406.

Mattingly, K, B.D. Johnson, and **D.A. Fischer**. (2015) Characterization of Atmospheric Saharan Dust Plumes Using Remote Hyperspectral Imagery for Public Health. *Papers in Applied Geography*, Volume 1, No. 3, 286-293.

Fischer, D.A., D.H. Alsem, B. Simon, T. Prozorov, and N.J. Salmon. (2013) Development of an Integrated Platform for Cross-Correlative Imaging of Biological Specimens in Liquid using Light and Electron Microscopies. *Microscopy and Microanalysis* 19:Suppl. 2, 476–477.

Presentations & Proceedings

Fischer, D.A. and G.D. Smith (2017) UV-Visible Photoacoustic Spectroscopy for Aerosol Absorption. *American Association for Aerosol Research Annual Conference*, Raleigh, NC.

Renbaum-Wolff, L., **D.A. Fischer**, T. Helgestad, A. Lambe, G. Smith, C. Cappa, A.J. Sedlacek, P. Davidovits, ***T. ONASCH***, A. Freedman. (2016) Broadband Measurements of the Mass Absorption Coefficient of Soot. *American Association for Aerosol Research Annual Conference*, Portland, OR. 7CA.1.

Fischer, D.A. (2016) Automatic for the Orchids: How to automate orchid care with DIY electronics. *Northeast Georgia Orchid Society*.

Renbaum-Wolff, L., **D.A. Fischer**, T. Helgestad, A. Lambe, G. Smith, C. Cappa, A. Sedlacek, P. Davidovits, T. Onasch, and ***A. FREEDMAN***. (2016) Measurements of Soot Mass Absorption Coefficients from 300 to 660 nm. *European Geophysical Union General Assembly 2016*, Vienna, Austria. EGU2016-9236.

Fischer, D.A. (2016) The Scent of Orchids. *Northeast Georgia Orchid Society*

Fischer, D.A. (2016) UV-visible Photoacoustic Spectroscopy: A new tool for climate science. *Northeast Georgia Section of the American Chemical Society*

L. RENBAUM-WOLFF, A. Lambe, T. Onasch, A. Freedman, L. Williams, T. Helgestad, C. Cappa, **D.A. Fischer**, G. Smith, S. China, C. Mazzoleni, A.J. Sedlacek, E. Browne, G. Isaacman-VanWertz, J. Kroll, J. Brogan, Y. Parmar, A. Lee, N. Sharma, J. Bhandari, J. Jayne, D. Worsnop, P. Davidovits. (2015) New Optical Experiments "Shed Light" on Role of Particle Morphology and Chemical Composition in the Absorption Enhancement of Coated Soot Particles. *American Association for Aerosol Research Annual Conference*, Minneapolis, MN. 12CC.3.

Fischer, D.A. and G.D. Smith. (2015) A UV-Vis Broadband Cavity Enhanced Spectrometer for Ambient Aerosols. *Eleventh International User Meeting and Summer School on Cavity Enhanced Spectroscopy*, Boulder, CO.

Fischer, D.A. and G.D. Smith. A UV-Vis Broadband Cavity Enhanced Spectrometer. *EPA Air Sensors 2014: A New Frontier*, Raleigh, NC, 2014.

Fischer, D.A. and G.D. Smith. (2013) Incoherent broadband cavity enhanced spectroscopy for measuring extinction coefficients of atmospheric species throughout the UV-visible spectrum. *Southeast Regional Meeting of the American Chemical Society*. Atlanta, GA.

Teaching

- **WCU CHEM 689**
  Cooperative Education in Chemistry
- **WCU CHEM 370**
  Instrumental Analysis I Laboratory
- **WCU CHEM 241**
  Organic Chemistry I Laboratory
- **WCU CHEM 191**
  Issues in Environmental Chemistry: Is clean air a right?
- **WCU ES 150**
  Introduction and Approaches to Environmental Science
  (3-week unit on Atmospheric Chemistry)
- **WCU CHEM 132**
  Survey of Chemistry Laboratory
- **Get Involved! Becoming a Citizen Scientist**
  University of Georgia First Year Odyssey
- **Hands-On Scientific Instrumentation**
  The Evergreen State College

Instruments I've Designed and Built

Click each item for more information.

- Continuous Flow Liquid Stage for Scanning Electron Microscopy
- Vapor Delivery System for SEM and TEM
- A UV-visible Broadband Cavity Enhanced Spectrometer
- An Incoherent-Coherent "Hybrid" UV-visible Photoacoustic Spectrometer
- A Single-Cell, 4-Wavelength Photoacoustic Instrument for Atmospheric Aerosols

Committees, Service, & Grant Support

- Chemistry Representative for WCU Environmental Science Program Committee (and faculty advisor to ES students)

- Duncan, S. (PI), L. Lefler (co-PI), **D.A. Fischer (co-PI)**, F. Forcino (co-PI), and A. Bobilya (co-PI) *Assessing air pollution exposures for Cherokee youth with Traditional Ecological Knowledge and Western Science Methods* Provost's Internal Funding Support Grant (2020 / *in review*).

- Duncan, S. and **D.A. Fischer**. *The Air Whee Breathe: Air Quality at WCU and Across the Region.* Campus theme sponsored event: Sustainability and Environment (2019-2020).

- Marulanda, N.A. (PI), L. McGregor (student), T. Muth (other), **D.A. Fischer (other)**, *From Waste to Energy: Bio-digesters gas characterization and feasibility study in WNC.* Provost's Internal Funding Support Grant (2019-2020).

- Wallen, J. R. (PI), Youker, R. T. (co-PI), Gainey, M. D. (co-PI), Byrd, B. D. (co-PI), Coan, H. A. B. (co-PI), Storm, A. (co-PI), Koralege, R. (co-PI), **Fischer, A. (Other)**, *Acquisition of a Molecular Devices SpectraMax iD5 Multi-Mode Plate Reader to Enhance High-Throughput Life Sciences Research at Western Carolina University,* Sponsored by Institutional Development Grant, North Carolina Biotechnology Center, State, Funded. (May 1, 2019 - April 30, 2020).

- Reviewer, Department of Energy SBIR Program