Al Fischer, PhD

Curriculum Vitae
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.

Fischer, D.A. (2011) Development of a GC-MS/EAD Method for the Study of Allomone Olfaction in Insects *American Chemical Society Puget Sound Section Research Symposium* Seattle, WA.

Teaching

In addition to the courses below, I teach one-on-one workshops for undergradaute and graduate students detailing how to use the ~20 pieces of chemical instrumentation owned by WCU. This is makes up one third of my teaching load at WCU and has allowed me to support dozens of students in their research endeavors and class projects.

- **WCU CHEM 689**
  Cooperative Education in Chemistry

- **WCU CHEM 370**
  Instrumental Analysis I Lecture & 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
- Graduate committee membership: Alexander Lillie (PI: Dr. Scott Huffman), Sarah Ryder (PI: Dr. Brian Dinkelmeyer)
- 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 (submitted / *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 Grants