

# ANDREY KHLYSTOV

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## Education

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- **Postdoc**, Carnegie Mellon University, Pittsburgh, USA 2003
- **Ph.D.**, Atmospheric Sciences, Wageningen University, the Netherlands 1998
- **M.S.**, Summa Cum Laude, Physical Chemistry, Novosibirsk State University, Russia 1992

## Professional Experience

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- **Research Professor Atmospheric Chemistry** 2017 to present  
Division of Atmospheric Sciences, Desert Research Institute
- **Director of Organic Analytical Laboratory** 2015 to present  
Division of Atmospheric Sciences, Desert Research Institute
- **Associate Research Professor Atmospheric Chemistry** 2014 to 2017  
Division of Atmospheric Sciences, Desert Research Institute
- **Senior Research Environmental Scientist** 2011 to 2014  
Research Triangle Institute
- **Adjunct Assistant Professor** 2011 to 2014  
Duke University, Dept. of Civil and Environmental Engineering
- **Assistant Professor** 2003 to 2011  
Duke University, Dept. of Civil and Environmental Engineering
- **Manager of the Pittsburgh Air Quality Study (PAQS)** 2000 to 2003  
Carnegie Mellon University, Dept. of Chemical Engineering
- **Research Scientist** 1998 to 2000  
Netherlands Energy Research Foundation (ECN), Dept. Fuels and Environment

## Awards and Honors

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*Personal awards and honors:*

- **Keynote speaker at 25th International Conference on Aerosol Science & Technology (ICAST)** 2018
- **New Investigator Best Abstract Award, SRNT** 2018
- **RTI Highly Published Author and Career Author Awards** 2012
- **NSF CAREER Award** 2010
- **Top-50 Most Cited Article, Journal of Aerosol Science** 2010
- **Certificate of Merit, Senol Utku Award, CEE, Duke University** 2009

*Awards to students under my supervision:*

- **Outstanding International Graduate Student Scholarship (UNR)**, Chiranjivi Bhattarai, 2020
- **Colin Warden Award for Best Research Paper**, Deep Sengupta, “Light absorption by polar and non-polar aerosol compounds from laboratory biomass combustion” 2019
- **Intel Science Talent Search Semi-finalist**, Suqi Huang, “Determination of Activity Coefficients of Wood Smoke Tracer in Artificial and Ambient Organic Semi-Volatile Aerosols” 2012
- **Best Student Poster, AAAR**, Rawad Saleh, “Determination of evaporation coefficients of di-carboxylic acid aerosols using the coupled IVM-TDMA technique” 2009
- **Best Student Poster, AAAR**, Rawad Saleh, “Enthalpy of vaporization and saturation vapor pressure for semi-volatile organic aerosols: the Integrated Volume Method”. 2008
- **Study Abroad Fellowship, Taiwan Ministry of Education**, Ming-Yeng Lin, “Effect of vegetation and sound barriers on the near-roadway air quality” 2008

## Courses Taught

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- Data analysis with Python for atmospheric scientists (UNR ATMS 792) 2020 – current
- Atmospheric chemistry (UNR ATMS 747) 2017 – current
- Air Pollution Measurements and Data Analysis (UNR ATMS 792) 2016 - current
- Air Pollution Control Engineering (Duke CE247) 2008 – 2011
- Aerosol Measurement Techniques (Duke CE230) 2006 – 2011
- Introduction to Atmospheric Aerosol (Duke CE229) 2005 – 2011
- Environmental Aquatic Chemistry (Duke CE242L) 2009
- Chemical Processes in Environmental Engineering (Duke CE120L) 2009
- Introduction to Environmental Science and Engineering (Duke CE24L) 2007 – 2008
- Chemistry and Microbiology for Environmental Engineers (Duke CE120L) 2004 – 2005

## Funded Projects

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(Budgets indicate my group funding, values in brackets are for the total budget)

- Multi-parameter investigation of factors controlling carbonyl emissions from electronic cigarettes. PI, NIH, \$1,415,510 2021 – 2024
- MRI: Development of an automated collection and extraction system (ACES) for off- or on-line chemical analysis of organic aerosol species. PI, NSF, \$431,581 2019 – 2022
- Associations of Smoke from Wildfires and Prescribed Burns with Cardiorespiratory Health Outcomes in Reno, Nevada. PI (Lead PI: M. Strickland, UNR), NIH, \$1,449,717 (\$2,881,651) 2019 – 2024

- Atmospheric Chemistry of Bioaerosols. PI, NSF, \$495,036 2018 – 2022
- Effect of DHA Development on PMI Variability, Co-PI, Coordinating Research Council, \$97,740 2019 – 2021
- Development of Novel On-line Technique at OAL/DRI for Analysis of Human Breath in Real Time. Co-PI, DRI Foundation, \$34,916 2018 – 2019
- Development of a High-Throughput Electronic Cigarette Testing System Co-PI, DRI Foundation, \$34,882 2018 – 2019
- Dangerous flavors: An experimental and computational investigation of thermal stability of flavoring compounds used in electronic cigarettes, PI, University of Nevada Reno and DRI, \$100,000 2018 – 2020
- Analysis of terpenes from cannabis grow operations PI, Colorado Department of Public Health and Environment, \$29,138 2018 – 2019
- Mapping the spatial distribution of toxic metals including hexavalent chromium in the air of communities surrounding metal grading and plating operations, PI, South Coast Air Quality Management District, \$190,000 2017 – 2019
- TEK103-16 Traditional Ecological Knowledge (TEK) Project VOC Sampling Analysis, PI, Wood Buffalo Environmental Association \$15,229 2016 – 2016
- Saturation Air Monitoring of Air Toxics in Davis County, Utah, PI, State of Utah Department of Env. Quality, \$177,506 2016 – 2017
- Detailed Analysis of Brown Carbon Constituents in Biomass Burning Emissions, Co-PI, NSF, \$471,584 2015 – 2020
- Chemical Analyses for Tobacco Flavorings Emission Characterization Co-PI, American Heart Association, \$60,184 2015 – 2017
- Volatile Organic Compounds (VOC's)/Reduced Sulphur Compounds (RSCs) Identification and Quantification, Co-PI, Wood Buffalo Environmental Association, \$51,687 2015 – 2016
- TEK-2 Oil sands project, Co-PI, Wood Buffalo Environmental Association, \$79,110 2015 – 2016
- Real-world vehicle emission characterization for Shing-Meng tunnel in Hong Kong and Ft. McHenry tunnel in the U.S., Co-PI, HEI, \$402,911 (\$649,912) 2014 – 2017
- Characterizing the Determinants of Vehicle Traffic Emissions Exposure: Land-Use, Traffic, Transformation and Transport, Co-PI, HEI, \$148,328 (\$761,681) 2014 – 2017
- Collaborative Research: Development of a digital microfluidic impactor for one minute measurements of main inorganic aerosol species, Lead PI, NSF, \$212,521 (\$641,058) 2014 – 2018
- Aerosol optical properties and biogenic SOA: Effect on hygroscopic properties and light absorption, PI, EPA STAR, \$399,190 2014 – 2018
- Quantifying Volatile Gaseous Emissions from Hops (*Humulus Lupulus*, as a Surrogate for Cannabis) Grown at Different Temperatures in DRI's Ecocell Controlled Greenhouse Environment Facility, Co-PI, Washoe County, \$50,000 2014 – 2015

- Oil Sands (AMS-14) VOC/S-Compound Monitoring, Co-PI, Wood Buffalo Environmental Association, \$46,831 2014 – 2015
- Analysis of Meat Cooking Emissions, PI, UC Riverside , \$32,648 2014 – 2015
- A nano-technology enabled low-cost sampler for aerosol and VOC measurements, PI, RTI IR&D, \$35,120 2012 – 2013
- Low cost sensor for global aerosol observations, PI, RTI IR&D, \$45,000 2011 – 2012
- CAREER: Towards a better understanding of ambient semi-volatile organic aerosol: Investigation of thermodynamic properties of multi-component organic aerosols, PI, NSF, \$453,544 2010 – 2014
- Initial phase of development of digital microfluidic impactor, PI, NSF, \$160,000 2008 – 2011
- 2009 JAMEX-RAJO-MEGHA Field Campaign in the Himalayas – Central Nepal Transects, Co-PI, NASA, \$59,979 (over \$2,000,000) 2009 – 2010
- Participation in WA4-51 field activities, PI, EPA, \$47,000 (over \$1,000,000) 2008 – 2009
- Human gene expression analysis following a mycotoxin exposure event, Co-PI, Duke/CCBVP, \$15,000 2007 – 2008
- Design/Build/Operate Sensing Labs Using Sensors, Sensor Circuits, Sensor Communications, Sensor/Analyte Interfaces, Co-PI, Lord Foundation, \$60,000 2007 – 2008
- Dynamics of inorganic and organic aerosol nitrogen, PI, EPA \$130,000 2006 – 2008
- A Compact, In-Situ Instrument for Organic Acid Aerosols, Co-PI, DOE, \$70,000 (\$750,000) 2005 – 2006
- Enhanced Delaware Air Toxics Assessment Study (EDATAS), Co-PI, EPA, \$77,000 (\$495,000) 2004 – 2006

## Peer-reviewed Publications

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(Google Scholar 6060 citations, *H* index = 39)

(\* my student or postdoc)

86. Axelrod K.\*, Samburova V., **Khlystov A.** (2021) Species-specific Chemical Analysis of Pollen for Source Identification of Atmospheric Aerosol. *Science of the Total Environment*. In press.
85. Kuehl P.J., McDonald J.D., Weber D.T., **Khlystov A.**, Nystoriak M.A., Conklin D.J. (2021) Composition of Aerosols from Thermal Degradation of Flavors Used in ENDS and Tobacco Products. Submitted to ACS Omega.
84. Zhang T.\*, Bhattarai C.\*, Son Y.\*, Samburova V., **Khlystov A.**, Varganov S.A. (2021) Reaction mechanisms of anisole pyrolysis at different temperatures: Experimental and theoretical studies. *Energy & Fuels*. 10.1021/acs.energyfuels.1c00858
83. Samburova V., Shillito R.M., Berli M., **Khlystov A.Y.**, Moosmüller H. (2021) Effect of Biomass-Burning Emissions on Soil Water Repellency: A Pilot Laboratory Study. *Fire*, 4, 24. <https://doi.org/10.3390/fire4020024>
82. Bhattarai C.\* and **Khlystov A.** (2021) Derivation of particle size changes from polydisperse size distribution measurements: numerical and experimental verification. *Aerosol Science and Engineering*. 5(2), 214-222, <https://doi.org/10.1007/s41810-021-00095-5>

81. Crumeyrolle, S., Mensah, A., **Khlystov, A.**, Kos, G., ten Brink, H. (2021) On the importance of nitrate for the droplet concentration in stratocumulus in the North-Sea region. *Atmos. Environ.* <https://doi.org/10.1016/j.atmosenv.2021.118278>
80. Sengupta, D.\* , Samburova, V., Bhattarai, C.\* , Watts, A., Moosmüller, H., and **Khlystov, A.** (2020) Polar semi-volatile organic compounds in biomass burning emissions and their chemical transformations during aging in an oxidation flow reactor, *Atmos. Chem. Phys.*, 20 (13), 8227-8250.
79. Son Y., Bhattarai C.\* , Samburova V., **Khlystov A.** (2020) Carbonyls and Carbon Monoxide Emissions from Electronic Cigarettes Affected by Device Type and Use Patterns. 17, 2767
78. Son Y., Giovenco D.P., Delnevo C., **Khlystov A.**, Samburova V., Meng Q. (2020) Indoor Air Quality and Passive E-cigarette Aerosol Exposures in Vape-shops. *Nicotine & Tobacco Research*, ntaa094, <https://doi.org/10.1093/ntr/ntaa094>.
77. Ebersole J.L., Samburova V., Son Y.\* , Cappelli D., Demopoulos C., Capurro A., Pinto A., Chrzan B., Kingsley K., Howard K., Clark N., **Khlystov A.** (2020) Harmful Chemicals Emitted from Electronic Cigarettes and Potential Deleterious Effects in the Oral Cavity. *Tobacco Induced Diseases*. 18, 41.
76. Huang S., Connolly J.\* , **Khlystov A.**, Fair R.B. (2020) Digital Microfluidics for the Detection of Selected Inorganic Ions in Aerosols, *Sensors*, 20, 1281.
75. Rennie M., Samburova V., Sengupta D.\* , Bhattarai C.\* , Arnott W.P., **Khlystov A.**, Moosmüller H. (2020) Emissions from the Open Laboratory Combustion of Cheatgrass (*Bromus Tectorum*), *Atmosphere*, 11, 406.
74. Beres N. D., Sengupta D.\* , Samburova V., **Khlystov A. Y.**, and Moosmüller H. (2020) Deposition of brown carbon onto snow: changes of snow optical and radiative properties, *Atmos. Chem. Phys.*, 20, 6095-6114.
73. Nelson K.N., Boehmler J.M., **Khlystov A.Y.**, Moosmüller H., Samburova V., Bhattarai C.\* , Wilcox E.M., Watts A.C. (2019) A smoke emissions sensing and sampling instrument package for small unmanned aircraft systems: development and testing. *Fire*. 2(2), 32, doi:10.3390/fire2020032
72. Samburova V., McDaniel M., Campbell D., Wolf M., Stockwell W.R., **Khlystov A.** (2019) Dominant Volatile Organic Compounds (VOCs) measured at four Cannabis growing facilities: Pilot study results. *Journal of Air & Waste Management Association*. 69, 1267-1276.
71. Son Y., Mishin V., Laskin J., Mainelis G., Wackowski O., Schwander S., **Khlystov A.**, Samburova V., Meng Q. (2019) Hydroxyl radicals in e-cigarette vapor and e-vapor oxidative potentials under different vaping patterns. *Chemical Research in Toxicology*. 32, 1087-1095.
70. Lin M.Y.\* , Huang C.W., , Katul G.G., Chu C.-R., and **Khlystov A.** (2019) The simultaneous effects of image force and diffusion on ultrafine particle deposition onto vegetation: A wind tunnel study. *Aerosol Science and Technology*, DOI: 10.1080/02786826.2019.1567908.
69. **Khlystov A.** and Samburova V. (2018) Comment on “Do flavouring compounds contribute to aldehyde emissions in e-cigarettes” by Farsalinos and Voudris. *Food and Chemical Toxicology*, 120, 724-725.
68. Bhattarai C.\* , Samburova V., Sengupta D.\* , Iaukea-Lum M., Watts A.C., Moosmüller H., **Khlystov A.Y.** (2018) Physical and chemical characterization of aerosol in fresh and aged emissions from open combustion of biomass fuels. *Aerosol Science and Technology*, DOI: 10.1080/02786826.2018.1498585.

67. Sengupta, D.\*, Samburova, V., Bhattarai, C.\*, Kirillova, E., Mazzoleni, L., Iaukea-Lum, M., Watts, A., Moosmüller, H., and **Khlystov, A.** (2018) Light absorption by polar and non-polar aerosol compounds from laboratory biomass combustion, *Atmos. Chem. Phys.*, 18, 10849-10867.
66. Samburova, V., Bhattarai C.\*, Strickland M., Darrow L., Angermann J., **Khlystov A.** (2018) Aldehydes in exhaled breath during e-cigarette vaping: results of a pilot study. *Toxics*, 6, 46; doi:10.3390/toxics6030046.
65. Saha P.K., **Khlystov A.**, Grieshop A.P. (2018) Downwind evolution of the volatility and mixing state of near-road aerosols near a US interstate highway. *Atmospheric Chemistry and Physics*, 18, 2139-2154.
64. Saha P.K., **Khlystov A.**, Snyder M.G., Grieshop A.P. (2018) Characterization of air pollutant concentrations, fleet emission factors, and dispersion near a North Carolina interstate freeway across two seasons. *Atmospheric Environment*, 177, 143-153.
63. Samburova V., Zielinska B., **Khlystov A.** (2017) Do 16 Polycyclic Aromatic Hydrocarbons Represent PAH Air Toxicity? *Toxics*. 5(3), 17.
62. Zhang Z.-H., **Khlystov A.**, Norford L., Tan Z.-K., Balasubramanian R. (2017) Characterization of traffic-related ambient fine particulate matter (PM<sub>2.5</sub>) in an Asian city: environmental and health implications. *Atmospheric Environment*. 161, 132-143.
61. Saha P.K., **Khlystov A.**, Yahya K., Zhang Y., Grieshop A.P. (2017) Quantifying the volatility of organic aerosol in the southeastern U.S. *Atmospheric Chemistry and Physics*, 17 (1), 501-520.
60. **Khlystov A.** and Samburova V. (2017) Response to Comment on “Flavoring Compounds Dominate Toxic Aldehyde Production During E-cigarette Vaping”. *Environmental Science and Technology*. 51 (4), 2493-2494.
59. **Khlystov A.** and Samburova V. (2016) Flavoring Compounds Dominate Toxic Aldehyde Production During E-cigarette Vaping. *Environmental Science and Technology*. 50 (23), 13080-13085.
58. Sullivan R.C., Crippa P., Hallar A.G., Clarisse L., Whitburn S., Van Damme M., Leitch W.R., Walker J.T., **Khlystov A.**, and Pryor S.C. (2016) Using satellite-based measurements to explore spatiotemporal scales and variability of drivers of new particle formation. *Journal of Geophysical Research, Atmospheres*, 121, doi:10.1002/2016JD025568.
57. Samburova V., Connolly J.\*, Gyawali M., Yatavelli R.L.N., Watts A.C., Chakrabarty R.K., Zielinska B., Moosmüller H., **Khlystov A.** (2016) Polycyclic Aromatic Hydrocarbons in Biomass-Burning Emissions and Their Contribution to Light Absorption and Aerosol Toxicity. *Science of the Total Environment*, 568, 391-401.
56. Lin M.\*, Hagler G., Baldauf R., Isakov V, Lin H.-Y., **Khlystov A.** (2016) The Effects of Vegetation Barriers on Near-road Ultrafine Particle Number and Carbon Monoxide Concentrations. *Science of the Total Environment*, 553, 372-379.
55. Saha P., **Khlystov A.**, and Grieshop A. (2015) Determining aerosol volatility parameters using a “dual thermodenuder” system: Application to Laboratory-generated Organic Aerosol. *Aerosol Science and Technology*. 49, 620-632
54. Bilde M., Barsanti K., Booth M., Cappa C., Donahue N., McFiggans G., Krieger U.K., Marcolli C., Topping D., Ziemann P., Barley M., Clegg S., Dennis-Smith B., Emanuelson E.U., Hallquist M., Hallquist A.M., **Khlystov A.**, Kulmala M., Mogensen D., Percival C.J., Pope F., Reid J.P., Ribeiro da Silva M.A.V., Rosenoern T., Salo K., Soonsin V.P., Yli-Juuti T., Prisle

- N., Pagels J., Rarey J., Zardini A., Riipinen I. (2015) Saturation vapor pressures and transition enthalpies of low volatility organic molecules of atmospheric relevance: from dicarboxylic acids to complex mixtures. *Chemical Reviews*, 115, 4115-4156.
53. Huang C.W., Lin M.Y.\*, **Khlystov A.**, and Katul G. G. (2015) The effects of leaf size and micro-roughness on the branch-scale collection efficiency of ultrafine particles. *Journal of Geophysical Research - Atmospheres*. DOI: 10.1002/2014JD022458.
52. **Khlystov A.** (2014) Effect of aerosol volatility on the sizing accuracy of Differential Mobility Analyzers. *Aerosol Science and Technology*. 48, 604-619.
51. Lin M.\*, **Khlystov A.**, and Katul G. (2014) Vegetation Collection Efficiency of Ultrafine Particles: From Single-fiber to Porous Media. *Journal of Geophysical Research: Atmospheres*. 119, 222-229.
50. Huang C.-W., Lin M.\*, **Khlystov A.**, and Katul G. (2013) The effects of leaf area density variation on the collection efficiency of black carbon in the size range of ultrafine particles (UFP). *Environmental Science and Technology*. 47, 11607-11615.
49. Bell S.W., Hansell R.A., Chow J.C., Tsay S.-C., Wang S.-H., Ji Q., Li C., Watson J.G., and **Khlystov A.** (2013) Constraining aerosol optical models using collocated particle size and mass measurements in variable air mass regimes during the 7-SEAS/Dongsha Experiment. *Atmospheric Environment*, 78, 163-173.
48. Pillai P., **Khlystov A.**, Walker J., Aneja V.P. (2013) Observation and Analysis of Particle Nucleation at a Forest Site in the Southeast U.S. *Atmosphere*, 4, 72-93.
47. Shrestha P., Barros A.P, **Khlystov A.** (2013) CCN estimates from bulk hygroscopic growth factors of ambient aerosols during the pre-monsoon season over Central Nepal. *Atmospheric Environment*, 67, 120-129.
46. Lin M.\*, Kathul G., **Khlystov A.** (2012) A branch scale analytical model for predicting the vegetation collection efficiency of ultrafine particles. *Atmospheric Environment*, 51, 293-302.
45. Hagler G.S.W., Lin M.\*, **Khlystov A.**, Baldauf R., Isakov V., Faircloth J., Jackson L. (2012) Roadside vegetative and structural barrier impact on near-road ultrafine particle concentrations under a variety of meteorological conditions. *Science of the Total Environment*, 419, 7-15.
44. Lin M.\*, **Khlystov A.** (2012) Investigation of Ultrafine Particle Deposition to Vegetation Branches in a Wind Tunnel. *Aerosol Science and Technology*, 46, 465-472.
43. Saleh R.\*, **Khlystov A.**, Shihadeh A. (2012) Determination of evaporation coefficients of ambient and laboratory-generated semi-volatile organic aerosols from phase equilibration kinetics in a thermodenuder. *Aerosol Sci. Technol.*, 46, 22-30.
42. Saleh R.\*, Shihadeh A., **Khlystov A.** (2011) On transport phenomena and equilibration time scales in thermodenuders. *Atmospheric Measurement Techniques*, 4, 571-581.
41. Shrestha P., Barros A.P., **Khlystov A.** (2010) Chemical composition and aerosol size distribution of the middle mountain range in the Nepal Himalayas during the 2009 pre-monsoon season. *Atmospheric Chemistry and Physics*, 10, 11605-11621.
40. Lin M.\*, Walker J., Geron C., **Khlystov A.** (2010) Organic nitrogen in PM<sub>2.5</sub> aerosol at a forest site in the Southeast US. *Atmospheric Chemistry and Physics*, 10, 2145-2157.
39. Saleh R.\*, Shihadeh A., **Khlystov A.** (2010) Effect of aerosol generation method on measured saturation pressure and enthalpy of vaporization for dicarboxylic acid aerosols. *Aerosol Sci. Technol.*, 44, 302-307.

38. Saleh R.\*, Shihadeh A., **Khlystov A.** (2009) Determination of evaporation coefficients of semi-volatile organic aerosols using an Integrated Volume - Tandem Differential Mobility Analysis (IV-TDMA) method. *J. Aerosol Sci.*, 40, 1019-1029.
37. Saleh R.\*, **Khlystov A.** (2009) Determination of activity coefficients of binary semi-volatile organic aerosols using the Integrated Volume Method. *Aerosol Sci. Technol.*, 43, 838-846.
36. **Khlystov A.**, Lin M.\*, Bolch A.M.\*, Ma Y.\* (2009) Investigation of positive artifact formation during sampling semi-volatile aerosol using wet-walled denuders. *Atmos. Environ.* 43, 364-370.
35. Saleh R.\*, Walker J., **Khlystov A.** (2008) Determination of saturation pressure and enthalpy of vaporization of semi-volatile aerosols: the integrated volume method. *J. Aerosol Sci.* 39, 876-887. **Top-50 Most Cited Article in Journal of Aerosol Science in 2010.**
34. Baldauf, R.W., Cahill, T.A., Bailey, C.R., Khlystov, A., Zhang, K.M., Cook, J.R., Cowherd, C. and Bowker, G. (2009) Can roadway design be used to mitigate air quality impacts from traffic. *EM: Air & Waste Management Association's Magazine for Environmental Managers.* 8, 1-5.
33. Baldauf R., Thoma E., Hays M., Shores R., Kinsey J., Gullett B., Kimbrough S., Isakov V., Long T., Snow R., **Khlystov A.**, Weinstein J., Gilmour I., Cho S.-H., Watkins N., Rowley P., Bang J. (2008) Traffic and Meteorological Impacts on Near-Road Air Quality: Summary of Methods and Trends from the Raleigh Near-Road Study. *JAWMA*, 58, 865-878.
32. Baldauf R., Thoma E., **Khlystov A.**, Isakov V., Bowker G., Long T., Snow R. (2008) Impacts of Noise Barriers on Near Road Air Quality. *Atmos. Environ.* 42, 7502-7507.
31. Isakov V., Touma J.S., **Khlystov A.** (2007) A Method of Assessing Air Toxics Concentrations in Urban Areas Using Mobile Platform Measurements. *JAWMA*, 57, 1286-1295.
30. Bowker G.E., Baldauf R., Isakov V., **Khlystov A.**, Petersen W. (2007) The effects of roadside structures on the transport and dispersion of ultrafine particles from highways. *Atmos. Environ.*, 41, 8128-8139.
29. Fair R.B., **Khlystov A.**, Tailor T., Ivanov V., Evans R.D., Srinivasan V., Pamula V., Pollack M.G., Griffin P.B., Zhou J. (2007) Chemical and Biological Applications of Digital Microfluidic Devices. *IEEE Design and Test.* 24, 10-24.
28. **Khlystov A.**, Ma Y.\* (2006) An instrument for mobile measurements of the spatial variability of hexavalent chromium in urban air. *Atmos. Environ.* 40, 8088-8093.
27. Subramanian R., **Khlystov A.Y.**, Robinson A.L. (2006) Effect of peak inert-mode temperature on Elemental Carbon measured using Thermal-Optical Analysis. *Aerosol Sci. Technol.*, 40, 763-780.
26. **Khlystov A.**, Stanier C., Takahama, S., and Pandis S.N. (2005) Water content of ambient aerosol during the Pittsburgh Air Quality Study. *J. Geophys. Research-Atmospheres*, 110, D07S10, doi:10.1029/2004JD004651.
25. **Khlystov A.**, Zhang Q., Jimenez J.-L., Stanier S., Pandis S., Canagaratna M.R., Fine P., Misra C., Sioutas C. (2005) In-situ concentration of semi-volatile aerosol using water-condensation technology. *Journal of Aerosol Science*, 36, 866-880.
24. ten Brink H., Hoek G., and **Khlystov A.** (2005) An approach to monitor the fraction of elemental carbon in the ultra-fine aerosol. *Atmos. Environ.* 39, 6255 -6259.
23. Fair, R.B., **Khlystov, A.**, Srinivasan, V., Pamula, V. K., and Weaver, K.N. (2004) Integrated chemical / biochemical sample collection, pre-concentration, and analysis on a digital microfluidic lab-on-a-chip platform. *Lab-on-a-Chip: Platforms, Devices, and Applications. Proc. SPIE*, 5591(8), 113-124.



22. **Khlystov A.**, Stanier C., and Pandis S.N. (2004) An algorithm for combining electrical mobility and aerodynamic size distributions data when measuring ambient aerosol. *Aerosol Sci. Technol.* 38(S1), 229-238.
21. Stanier C., **Khlystov A.**, and Pandis S.N. (2004) Nucleation Events During the Pittsburgh Air Quality Study: Description and Relation to Key Meteorological, Gas Phase, and Aerosol Parameters. *Aerosol Sci. Technol.* 38(S1), 253-264.
20. Stanier C., **Khlystov A.**, Chan W.R., Mandiro M., and Pandis S.N. (2004) A Method for the In-situ Measurement of Aerosol Water Content of Ambient Aerosols: The Dry-Ambient Aerosol Size Spectrometer (DAASS). *Aerosol Sci. Technol.* 38(S1), 215-228.
19. Subramanian R., **Khlystov A.Y.**, Cabada J.C., and Robinson A.L. (2004) Positive and Negative Artifacts in Particulate Organic Carbon Measurements with Denuded and Undenuded Sampler Configurations. *Aerosol Sci. Technol.* 38(S1), 27-48.
18. Stanier C., **Khlystov A.**, and Pandis S.N. (2004) Ambient Aerosol Size distributions and Number Concentrations Measured During the Pittsburgh Air Quality Study (PAQS). *Atmos. Environ.*, 38 (20), 3275-3284.
17. Weijers E.P., Kos G.P.A., Erisman J.W., and **Khlystov A.Y.** (2004) Variability of particulate matter concentrations determined by a moving measurement unit. *Atmos. Environ.*, 38 (19), 2993-3002.
16. Cabada J.C., **Khlystov A.**, Wittig B., Pilinis C., Pandis S.N. (2004) Light scattering by fine particles during Pittsburgh Air Quality Study: Measurements and modeling. *J. Geophys. Res.-Atmospheres*, 109, D16S03, doi: 10.1029/2003JD004155.
15. Cabada J.C., **Khlystov A.**, Wittig B., Pilinis C., Pandis S.N. (2004) Mass size distributions and size resolved chemical composition of fine particulate matter at the Pittsburgh supersite. *Atmos. Environ.*, 38 (20), 3127-3141.
14. Rees S.L., Robinson A.L., **Khlystov A.**, Stanier C.O. and Pandis S.N. (2004) Mass Balance Closure and the Federal Reference Method for PM<sub>2.5</sub> in Pittsburgh, Pennsylvania. *Atmos. Environ.*, 38 (20), 3305-3318.
13. Wittig A.E., Anderson N., **Khlystov A.Y.**, Pandis S.N., Davidson C., Robinson A.L. (2004) Pittsburgh Air Quality Study Overview and Preliminary Scientific Findings. *Atmos. Environ.*, 38 (20), 3127-3141.
12. Wittig A.E., Takahama S., **Khlystov A.Y.**, Pandis S.N., Hering S., Kirby B., Davidson C. (2004) Semi-continuous PM<sub>2.5</sub> inorganic composition measurements during the Pittsburgh Air Quality Study. *Atmos. Environ.*, 38 (20), 3201-3213.
11. Mirme A., Kreyling W.G., **Khlystov A.**, ten Brink H., Ruuskanen J., Tuch T., Pekkanen J. (2002) Intercomparison of aerosol spectrometers for ambient air monitoring. *Aerosol Sci. Technol.*, 36 (8): 866-876.
10. **Khlystov A.**, Kos G.P.A., ten Brink H.M., Mirme A., Tuch T., Roth C., Kreyling W.G. (2001) Comparability of three spectrometers for monitoring urban aerosol. *Atmos. Environ.* 35 (11): 2045-2051.
9. Ruuskanen J., Tuch T., ten Brink H., Peters A., **Khlystov A.**, Mirme A., Kos G.P.A., Brunekreef B., Wichmann H.E., Buzorius G., Vallius M., Kreyling W.G., Pekkanen J. (2001) Concentrations of ultrafine, fine and PM<sub>2.5</sub> particles in three European cities. *Atmos. Environ.* 35 (21): 3729-3738.

8. Slanina J., ten Brink H.M., Otjes R.P., Even A., Jongejan P., **Khlystov A.**, Waijers-Ijpelaan A., Hu M. (2001) The continuous analysis of nitrate and ammonium in aerosols by the steam jet aerosol collector (SJAC): extension and validation of the methodology. *Atmos. Environ.* 35 (13): 2319-2330.
7. Erisman J.W., Otjes R., Hensen A., Jongejan P., van den Bulk P., **Khlystov A.**, Mols H., Slanina S. (2001) Instrument development and application in studies and monitoring of ambient ammonia. *Atmos. Environ.* 35 (11): 1913-1922.
6. ten Brink H.M., **Khlystov A.**, Kos G.P.A., Tuch T., Roth C., Kreyling W. (2000) A high-flow humidograph for testing the water uptake by ambient aerosol. *Atmos. Environ.* 34 (25): 4291-4300.
5. Slanina J., ten Brink H.M., **Khlystov A.** (1999) Fate of products of degradation processes: Consequences for climatic change. *Chemosphere* V38, 1429-1444.
4. **Khlystov A.**, Kos G.P.A., ten Brink H.M., Kruisz C., Berner A. (1996) Activation properties of ambient aerosol in The Netherlands. *Atmos. Environ.* V30, 3281-3290.
3. **Khlystov A.**, Kos G.P.A., ten Brink H.M. (1996) A high-flow turbulent cloud chamber. *Aerosol Science Technol.* V24, 59-68
2. **Khlystov A.**, Wyers G.P., Slanina J. (1995) The steam-jet aerosol collector. *Atmos. Environ.* V29, 2229-2234.
1. ten Brink H.M., Khlystov A., Veeffkind J.P., Kruisz C., Berner A. (1995) The reduction of solar radiation by anthropogenic aerosol in The Netherlands. *Studies in Environmental Sciences* V65B, 251-254.

## Book Chapters and Other Publications

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6. Khlystov A. and Samburova V. (2017) Response to “Comment on ‘Flavoring Compounds Dominate Toxic Aldehyde Production during E Cigarette Vaping’ ”. *Environmental Science and Technology*. DOI: 10.1021/acs.est.7b00163
5. Khlystov, A. Y., (2015) Interactive comment on “Wintertime aerosol chemical composition, volatility, and spatial variability in the greater London area” by L. Xu et al. *Atmospheric Chemistry and Physics*.
4. Stanier C.O., Cabada J.C., Khlystov A.Y., Pandis S.N. (2003) Atmospheric aerosol chemical and physical processes. In: *Air Pollution Processes in Regional Scale*. (Eds. Melas D. and Syrakov D.), V.30, 265-280.
3. Khlystov A. (1998) Cloud Forming Properties of Ambient Aerosol in The Netherlands and Resultant Shortwave Radiative Forcing of Climate. PhD Thesis, Wageningen University, Wageningen, The Netherlands.
2. Wyers G.P., Otjes R.P., Wayers A., Mols J.J., Khlystov A., Jongejan P.A.C., Slanina J. (1997) Development of instrumentation for measurement of concentrations and surface-exchange fluxes of air pollutants. In: *Transport and Chemical Transformation of Pollutants in the Troposphere*. V4. *Biosphere-Atmosphere Exchange of Pollutants and Trace Substances*. (Ed. J. Slanina). Springer-Verlag, 216-223.
1. Wyers, G.P., Otjes, R.P., Waayers, A., Mols, J.J., Khlystov, A., Arends, B.G., Jongejan, P.A.C., (1992). Development of instrumentation for dry deposition measurements. In: *BIA-TEX Annual Report 1991* (Ed. Slanina, J.). Published by the ISS, Fraunhofer Institut, BRD and the Commission of the European Communities.

## Patents

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1. Walls H.J., Clayton A.C., Ensor D.S., Khlystov A.Y. (2019) Systems, Devices, and Methods for Flow Control and Sample Monitoring Control. Patent No. 10345216.

## Invited Presentations

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13. Khlystov A. *Light-absorbing organic carbon in biomass burning aerosols, its properties and transformations*, Keynote speech at 25th International Conference on Aerosol Science & Technology (ICAST), Tainan, Taiwan, September 14-15, 2018
12. Khlystov A. *Air toxics: from "natural" fires to traffic to electronic cigarettes*. Federico Santa Maria Technical University, Valparaiso, Chile, August 9, 2018.
11. Khlystov A. *Fires and tunnels and flavors, oh my! - current research at the DRI Organic Analytical Laboratory*. Carnegie Mellon University, Pittsburgh, PA, June 5, 2017.
10. Khlystov, A. Y., Samburova, V., Pearson, J., Strickland, M., Angermann, J., Darrow, L., Bhattarai, C. *Dangerous flavors: the effect of flavoring additives on emissions of toxic compounds during e-cigarette use*, PittCon 2018: Orlando, FL, February 26, 2018-March 1, 2018
9. Khlystov A. *Measurements of organic aerosol volatility: Challenges and implications for organic aerosol modeling*. University of North Carolina, Chapel Hill, January 11, 2013.
8. Pye H.O.T., Khlystov A., Geron C. *What enthalpy of vaporization should models use? Organic Particles in the Atmosphere: Formation, Properties, Processing, and Impact*. The Telluride Summer Research Workshop, Telluride CO, August 1, 2012.
7. Khlystov A. *Measurements of organic aerosol and its volatility*. U.S. Environmental Protection Agency, Research Triangle Park, April 19, 2012.
6. Khlystov A. *Measurements of organic aerosol volatility: from laboratory to ambient aerosol*. Scripps Institution of Oceanography, January 19, 2011.
5. Khlystov A. *The Integrated Volume Method. International Workshop on Saturation Vapour Pressures and Activities of Organic Compounds*. Copenhagen, Denmark, November 8 – 10, 2010.
4. Khlystov A. *Challenges in aerosol measurements: Instrument Development and application to field and laboratory studies*. NC A&T State University, November 18, 2010.
3. Khlystov A. *Experimental investigation of thermodynamic and kinetic properties of semi-volatile organic aerosols*. Washington State University, April 8, 2010.
2. Khlystov A. *Fine Scale Characterization of Spatial Variability of Air Pollutants in Urban Areas*. University of North Carolina, Chapel Hill, November 2007.
1. Khlystov A. *Development of digital microfluidic impactor*. The 2nd National Conference on Environmental Sampling and Detection for Bio-Threat Agents. Brooklyn, New York, October 25 – 27, 2006.

## Extended Abstracts

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28. Khlystov, A.Y., Takahama, S., Pandis, S. (2004) Measurements of ammonia and ammonium in ambient air during Pittsburgh Air Quality Study. Proceedings of AWMA Symposium on Air Quality Measurement Methods and Technology, Paper #45.
27. Khlystov, A.Y., Stanier, S., Pandis, S. (2004) Aerosol Water Content and Size Dependent Growth during Pittsburgh Air Quality Study. Proceedings of AWMA Symposium on Air Quality Measurement Methods and Technology, Paper #33.
26. Khlystov, A.Y., Stanier, C., Pandis, S.N. (2003) Water content and size dependent growth of ambient aerosol during Pittsburgh Air Quality Study. *J. Aerosol Sci.*, 34, S3-S4.
25. Stanier, C.O., Khlystov, A.Y., Zhang, Q., Jiminez, J.L., Caragaratna, M., Worsnop, D., Pandis, S.N. (2003). Examining sulfuric acid nucleation events in the Northeast United States. *J. Aerosol Sci.*, 34, S1343-S1344.
24. Weijers, EP; Khlystov, A; Ten Brink, HM (2000) TEOM performance when sampling pure ammonium nitrate aerosol. *J. Aerosol Sci.* 31, S25-S26.
23. Even A., Ten Brink H.M., Khlystov A., Smekens A., Berghmans P., Van Grieken R. (2000) The influence of black carbon on the crystallization point of salt aerosol. *J. Aerosol Sci.*, 31, S336-S337
22. Even A, Khlystov A, Kos GPA, Brink HM ten, Hoek G, Oldenwening M, Hartog J. (2000) Improvement of BC measurement with the ambient carbon particulate monitor RP5400. *J. Aerosol Sci.* S897-S898.
21. E.P. Weijers, J.W. Erisman, H. ten Brink, A.T. Vermeulen, A. Khlystov and G. Kos. (2000) Measurements of particulate matter with a mobile unit. In: Transport and Air Pollution; Proceedings of the 9th International Scientific Symposium; Avignon, France, 5-8 June 2000.
20. Pekkanen J, Mirme A, Tuch T, ten Brink H, Peters A, Khlystov A, Kos GPA, Brunekreef B, Wichmann HE, Vallius M, Ruuskanen J, Kreyling W (1999) Exposure and risk assessment for fine and ultrafine particles in ambient air (ultra). *Epidemiology* 10 (4): 3030.
19. W.G.Kreyling, C.Roth, A.Mirme, A.Khlystov, H.M.ten Brink, G.P.A. Kos, T.Tuch, J.Ruuskanen, M.Vallius, J.Pekkanen. (1999) Exposure assessment for fine and ultrafine particles in ambient aerosols. *Inhal.Toxicology*.
18. A. van Lammeren, A. Feijt, D. Donovan, H. Bloemink, H. Russchenberg, V. Venema, J. Erkelens, A. Apituley, H. ten Brink, A. Khlystov, S. Jongen, G. Brussaard and M. Herben (1999) Clouds and radiation: intensive experimental study of clouds and radiation in the Netherlands (CLARA). Proc. Symposium Remote Sensing of Cloud Parameters: Retrieval and Validation, 21-22 October 1999, Delft, The Netherlands, pp. 5-10.
17. J. Slanina, H.M. ten Brink, A.Y. Khlystov. Policy Implications of Emissions Resulting in Formation, Transport and Deposition of Aerosols. Proceedings of EUROTRAC Symposium '98 Editors: Patricia M. Borrell and Peter Borrell, WITpress, Southampton and Boston 1999, p.16.
16. A.Khlystov, P.Dougle, R.Otjes, P.Jongejan, A.Waijers-Ijpelaan and H.M.ten Brink (1998) Comparison of four techniques for measurements of aerosol ammonium nitrate content. *J.Aerosol Sci.*, V29, S151-152.
15. H.M. ten Brink, A. Khlystov, G.P.A Kos, W. Kreyling, C. Rooth and T.Tuch (1998) The wetness of ambient aerosol and its influence on sizing and collection. *J. Aerosol Sci.*, V29, S963-964.
14. A.Khlystov, G.P.A.Kos, H.M.ten Brink, C.Kruisz, R.Hitzenberger, A.Berner, (1998) An indirect measurement of cloud activation properties of ambient black carbon particles. *J.Aerosol Sci.*, V29, S717-718

13. A.Khlystov, G.P.A.Kos, H.M.ten Brink, H.Ruschenberg, V.Venema (1998) Estimation of supersaturation in a stratocumulus cloud from combined airborne and ground measurements. *J.Aerosol Sci.*, V29, S715-716.
12. A.Even, A.Khlystov, H.M.ten Brink (1998) Performance of two ambient carbon particulate monitors in background air. *J.Aerosol Sci.*, V29, S873-S874.
11. A.Even, A.Smekens, A.Khlystov, R.Berghmans, R.van Grieken, H.M.ten Brink (1998) Morphology of internally mixed aerosol of ammonium sulfate and soot. *J.Aerosol Sci.*, V29, S753-754
10. A.Khlystov, A.Even, H.M. ten Brink (1997) Effect of temperature, ammonia concentration and flow rate on under-sizing of ammonium nitrate aerosol in DMPS / SMPS. *J. Aerosol Sci.*, V28, S59-60.
9. A.Khlystov, A.Even, H.M. ten Brink (1997) Performance of the ECN Large-flow cloud chamber as a scanning CCN-spectrometer. *J. Aerosol Sci.*, V28, S215-216
8. P.Mikuska, A.Khlystov, H.M. ten Brink, G.P.Wyers, J.Slanina (1997) A system for on-line chemical analysis of aerosol species. *J. Aerosol Sci.*, V28, S445-446.
7. P.Mikuska, A.Even, A.Khlystov, H.M.ten Brink, G.P.Wyers, J. Slanina (1997) Artifact-free method for size resolved chemical analysis of ambient aerosols. *J. Aerosol Sci.*, V28, S443-444.
6. A.Khlystov, H.M.ten Brink, A.Toivonen (1996) Evaporation of ammonium nitrate aerosol in DMPS / SMPS. *J. Aerosol Sci.* V27, S75-S76.
5. H.M.ten Brink, A.Khlystov, C.Kruisz and A.Berner (1996) Aerosol size and composition in the Netherlands. In: *Proceedings of Eurotrac Symposium '96*, (Ed. P.M.Borrel, P.Borrel, T.Cvitas, K.Kelly and W.Seiler), Computational Mechanics Publications, Southampton.
4. A.Khlystov, G.P.A.Kos, H.M.ten Brink, A. Berner and C. Kruisz (1995) Activation Properties of Marine Aerosol in The Netherlands. *J. Aerosol Sci.* V26, S897-S898.
3. A.Khlystov, G.P.A.Kos, H.M.ten Brink, A.Berner and C.Kruisz (1995) Characterization of the ECN High-Flow Turbulent Cloud Chamber. *J.Aerosol Sci.* V26, S185-S186.
2. G.P.Wyers, H.M.ten Brink, A.Khlystov, A.N.Ankilov, N.M.Bazhin and S.E.Pashenko. (1995) Automated aerosol-denuder complex for measurement of the size distribution and composition of aerosol near Novosibirsk in 1994-1995. *J. Aerosol Sci.* V26, S379-S381.
1. A.Khlystov, G.P.Wyers, J.Slanina (1995) The Steam-Jet Aerosol Collector. *J. Aerosol Sci.* V26, S379-S381.

## Presentations

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Over 180 presentations, a list available upon request.

## Selected Project Reports

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17. Wang, X., Khlystov, A. Y., Ho, K., Campbell, D. E., Chow, J. C., Kohl, S. D., Watson, J. G., Lee, Shuncheng, Chen, L.-W.A., Lu, M., Ho, S.S.H., 2018: Real-world vehicle emission characterization for the Shing Mun tunnel in Hong Kong and Ft. McHenry Tunnel in the U.S., submitted, Health Effects Institute, Boston, MA.

16. Barbara Zielinska, Mark McDaniel and Andrey Khlystov. January 29, 2016. Final Report Volatile Organic Compound (VOC) Passive Monitoring in Athabasca Oil Sands Region, Alberta, Canada, 9p. Prepared for The Wood Buffalo Environmental Association Fort McMurray, AB T9K1Y1, Canada.
15. Mark McDaniel, Andrey Khlystov, and Barbara Zielinska. March 31, 2016. Final Report Volatile Organic Compound (VOC) and Sulfur Compound Monitoring in Athabasca Oil Sands Region, Alberta, Canada, 16p. Prepared for The Wood Buffalo Environmental Association Fort McMurray, AB T9K1Y1, Canada.
14. Mark McDaniel, Vera Samburova, and Andrey Khlystov. September 22, 2016. Final Report Emissions of Volatile Organic Compounds from Cultivation of Marijuana (*Cannabis Sativa*) for Medical Purposes, 31p. Prepared for Washoe County Air Quality Management Division.
13. Martini, J., M. Johnston, A. Khlystov, V. Isakov, and J. Ching. 2006. Enhanced Delaware Air Toxics Study (E-DATAS). Final Report prepared for U.S. EPA Region 3. Delaware Department of Natural Resources & Environmental Control, Division of Air & Waste Management, Dover, DE. September.
12. Khlystov, A., A. Wittig, and C. Davidson. 2001. Quality Assurance Project Plan for Pittsburgh Air Quality Study (PAQS). Prepared for Carnegie Mellon University, Pittsburgh, PA.
11. ten Brink, H.M., A. Hensen, A. Khlystov, R. van Dorland, A. Jeuken, P. van Velthoven, J. Lelieveld, A. van den Berg, D.P.J. Swart, J.B. Bergwerff, A. Apituley, and J.P. Veefkind. 2001. Aerosol, Cycle and Influence on the Radiation Balance = MEMORA: Measurement and Modeling of the Reduction of Radiation by Aerosol. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-R-01-003. June.
10. Slanina, J., H.M. ten Brink, R.P. Otjes, A. Even, P.A.C. Jongejan, A. Khlystov, A. Waijers-Ijpelaar, M. Hu, and Y. Lu. 2000. The Continuous Analysis of Nitrate and Ammonium in Aerosols by the Stream Jet Aerosol Collector (SJAC): Extension and Validation of the Methodology. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-RX-00-039 EN. November.
9. Khlystov, A., E.P. Weijers, G.P.A. Kos, W.C.M. van den Bulk, A. Even, H.M. ten Brink, and J.W. Erisman. 2000. Characterisation of Particulate Matter in Urban Air: Instrumentation Development and Experimental Results. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-R-00-001 EN, April.
8. Vermeulen, A.T., F. Bakker, M. Geusebroek, A. Khlystov, and J.W. Erisman. 1999. Volatile Organic Compounds and Aerosols in Air: Development of Sampling Methods, Chemical Analysis and Modeling. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-R-99-001 EN. April.
7. ten Brink, H.M., and A. Khlystov. 1997. Het Effect van Aerosol-Deeltjes op het Klimaat Is Niet-Lineair. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-I-97-037 NL.
6. Wyers, G.P., H.M. ten Brink, A. Khlystov, J.J. Möls, and J.H. Duyzer. 1997. Atmospheric Dispersion of Heavy Metals and Polycyclic Aromatic Hydrocarbons from Motorways: A Research Strategy. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-C-97-024 EN.
5. Wyers, G.P., R.P. Otjes, J. Slanina, A. Khlystov, M.T. Oms, P.A.C. Jongejan, A.C. Veltkamp, and Y. Bai. 1996. Development of Instrumentation for the Measurement of Atmospheric Concentrations of Acidifying Compounds. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-C-96-039 EN.

4. ten Brink, H.M., A. Khlystov, J.P. Veeffkind, C. Kruisz, and A. Berner. 1995. The Reduction of Solar Radiation by Anthropogenic Aerosol in the Netherlands. (Intended for the Proceedings of the Climate Change Research Conference, Maastricht, the Netherlands. December 6-9, 1994). Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-RX-94-115 EN.
3. ten Brink, H.M., A. Khlystov, G.P.A. Kos, C. Kruisz, and A. Berner. 1995. The Role of Aerosol/Clouds in the Radiation Balance of the Atmosphere: NOP Project number 852066. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-R-95-009 EN.
2. Khlystov, A., H.M. ten Brink, and G.P. Wyers. 1993. Hygroscopic Growth Rates of Aerosols at High Relative Humidity. Prepared for the Energy Research Center of the Netherlands, Petten, the Netherlands. Report number ECN-C-93-011 EN.
1. Wyers, G.P., R.P. Otjes, A. Waayers, J.J. Mols, A. Khlystov, B.G. Arends, and P.A.C. Jongejan. 1992. Development of Instrumentation for Dry Deposition Measurements. BIATEX Annual Report 1991. Published by ISS, Fraunhofer Institut, BRD, and the Commission of the European Communities.

## Professional Organizations

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(past and present membership)

- American Association for Aerosol Research, current
- American Geophysical Union, current
- American Chemical Society, current
- Royal Society of Chemistry, past
- Air and Waste Management Association, past
- European Aerosol Society, past

## Professional Service

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- Member of DRI Faculty Senate
- Chair of DRI Division of Atmospheric Sciences Faculty Promotion Committee
- Member of DRI Research Affairs Council
- Member of DRI Peter B. Wagner Memorial Award for Women in Atmospheric Sciences
- Member of the Editorial Board of Atmosphere
- Reviewer for the NSF Atmospheric Chemistry Program
- Reviewer for the CAREER Program of the NSF Chemistry Program
- Panel reviewer for the NSF Environmental Engineering Program (2009-2012)
- Panel reviewer for the EPA STAR program (2011)
- Panel reviewer for the EPA SBIR and STTR programs (2011-2012)

- Reviewer for Aerosol Science and Technology, Analytica Chimica Acta, Atmospheric Chemistry and Physics, Atmospheric Environment, Atmospheric Measurement Techniques, Environmental Science and Technology, the Journal of Aerosol Science, the Journal of the Air and Waste Management Association, the Journal of Environmental Monitoring, the Journal of Geophysical Research, and Proceedings of the National Academy of Sciences of the United States of America
- Co-Guest Editor for special issue on air toxics of the journal “Toxics” (2016-2017)
- Chaired numerous sessions at American Association for Aerosol Research Annual Conferences.
- Chair of Atmospheric Aerosol Workgroup, American Association for Aerosol Research (2007)
- Member of 2007 AAAR Annual Conference Technical Program Committee, American Association for Aerosol Research (2007)
- Co-convenor of Special Symposium “Advances in Instrumentation for Organic Aerosols: Development, Application, and Use in Model Evaluation” (2007)
- Vice-chair of Atmospheric Aerosol Workgroup, American Association for Aerosol Research (2006)
- Member of the US EPA Ammonia DQO Workgroup (2006)
- Member of the General Technical Program Committee, Particulate Matter Supersites Program and Related Studies: An AAAR International Specialty Conference (2005)

## Student and Post-doctoral Fellow Supervision

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### *Postdoctoral Fellows Supervised:*

- Dr. Ting Zhang, “Theoretical and computational investigation of thermal stability of flavoring compounds used in electronic cigarettes”, 2018 – 2020.
- Dr. Yeongkwon Son, “Biomarkers of exposure to electronic cigarette aerosols”, 2018 – 2019.
- Dr. Yilin Ma, “Development of an instrument for mobile measurements of hexavalent chromium in urban air”, 2004 – 2006.

### *Doctoral Students Supervised:*

- Siying Lu, “Impact of forest fires on aerosol properties in Western United States”, expected graduation in 2023
- Dante Staten, “Impact of wild and prescribed fires on air quality and human health”, anticipated graduation 2023.
- Kevin Axelrod, “Atmospheric chemistry of bioaerosols”, anticipated graduation 2022.
- Chiranjivi Bhattarai, “Experimental and modeling study of evaporation kinetics of organic aerosols”, anticipated graduation 2021.
- Deep Sengupta, “Chemical composition and light absorbing properties of fresh and aged brown carbon aerosols from laboratory biomass burning”, graduated in 2020.
- Ming-Yeng Lin, “Measurements and modeling of the effect of vegetation and sound barriers on the near-roadway air quality”, graduated September 2011.
- Rawad Saleh, “Thermodynamics of multi-component organic mixtures in ambient aerosol”, graduated December 2010.



*Masters Students Supervised:*

- Grzegorz Swistak, “Aerosol size distributions in urban-influenced Eastern Sierra-Nevada”, graduated in 2019.
- Jessica Connolly, “Development of colorimetric assays for microfluidic determination of main inorganic constituents in ambient aerosols”, graduated in 2016.
- Bang-Ning Hsu, “Development of Digital Microfluidic Impactor”, graduated in 2012.
- Hyung-Nam Yu, “Nucleation events over forests in NC”, graduated in 2010.
- Denina Hospodsky, “Spatial variability of air pollutants in Wilmington, DE”, graduated September 2007.
- Nitin Goel, “Sensitivity of CCN number to temporal variability of aerosol size distribution and chemical composition estimated using highly time-resolved data”, graduated May 2006.

*Undergraduate Students Supervised:*

- Dilon Stettler (UNR), “Gas-particle partitioning of toxic compounds in e-cigarette aerosols”, 2019-2020.
- Hassan Beydoun (Duke U.), “Direct measurements of sub-cooled liquid vapor pressure of monocarboxylic acids”, 2010 – 2011.
- Jeffrey Shen (Duke U.) “Determination of aerosol chemical composition”, 2006 – 2008.
- Joshua Sommer (Duke U., co-advised with Claudia Gunsch), “Development of a sensor for mycotoxins”, 2005 – 2006.

*Highschool Students Supervised:*

- Suqi Huang, “Determination of Activity Coefficients of Wood Smoke Tracer in Artificial and Ambient Organic Semi-Volatile Aerosols”, 2011.

*Thesis Committees:*

- Deep Sengupta, Desert Research Institute (DRI), “Chemical composition and light absorbing properties of fresh and aged brown carbon aerosols from laboratory biomass burning”, graduated in 2020
- Jessica Connolly, Desert Research Institute (DRI), “Development of a Digital Microfluidic Lab-on-a-chip for Analysis of Atmospheric Inorganic Ions”, graduated in 2016.
- Giulia Ruggeri, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland, “Organic composition and physical properties of the atmospheric aerosol”, expected to graduate in 2018
- C.-W.Huang, Ph.D., Duke University, “Bridging the Scale Gap from Leaf to Canopy in Biosphere-Atmosphere Gas and Particle Exchanges”, graduated in 2016.
- M.Lin, Ph.D., Duke University, “Measurements and modeling of the effect of vegetation and sound barriers on the near-roadway air quality”, graduated in 2011.
- P.Shresta, Ph.D., Duke University, “Characterization of Pre-Monsoon Aerosol and Aerosol-Cloud-Rainfall Interactions in Central Nepal”, graduated in 2011.
- F.Owusu-Nimo, Ph.D., Duke University, “Investigating Linkages Between Engineering and Petrophysical Properties of Unconsolidated Geomaterials and their Geoelectrical Parameters”, graduated in 2011

- R.Saleh, Ph.D., Duke University, “Thermodynamics of multi-component organic mixtures in ambient aerosol”, graduated in 2010.
- D.K.Kang, Ph.D., Duke University, “Snow Hydrology: Measurement to Modeling of Snow Physical Properties”, graduated in 2010.
- M.A.Bolch, Ph.D., Duke University, “Evaluating the effects of land-surface heterogeneity at various scales on atmospheric boundary layer processes”, anticipated graduation in 2011.
- H.A.Wake, Ph.D., Duke University, “Electrophoresis on a CMOS chip”, graduated in 2010.
- H.Holder, Ph.D., Duke University, “Development and Use of a Helicopter-Based Observation Platform for the Study of the Effects of Surface Heterogeneity on Turbulent Fluxes”, graduated in 2009.
- J.Bandy, M.S., Duke University, “UV/H<sub>2</sub>O<sub>2</sub> degradation of nitrobenzene: The effects of IV lamp type and H<sub>2</sub>O<sub>2</sub> concentration on degradation kinetics”, 2008.
- E.J.Rosenfeldt, Ph.D., Duke University, “UV and UV/H<sub>2</sub>O<sub>2</sub> advanced oxidation: A theoretical, practical, and comparative examination of UV processes used to treat emerging contaminants of concern in drinking water” graduated 2007.
- K.Cho, Ph.D., Duke University, “Determination of Relationships between microbial communities and nitric oxide emission for monitoring the progress of bioremediation in toluene contaminated soil”, graduated in 2006.
- P.-J.Chen, Ph.D., Duke University, “Removal of Estrogenic Activity of Endocrine Disrupting Compounds in Water with UV and UV/H<sub>2</sub>O<sub>2</sub> Advanced Oxidation Processes”, graduated in 2005.
- R.Subramanian, Ph.D., Carnegie Mellon University, “Sampling, Analysis and Source-Apportionment of Ambient Carbonaceous Aerosols”, graduated in 2004.