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Education

Desert Research Institute, Reno	Chemistry	Post.Doc.	2007-2008
Swiss Federal Institute of Technology, Zurich	Chemistry	Ph.D.	2007
Moscow State University, Moscow	Chemistry	M.S.	2002

Professional Interests

-Speciation and characterization of organic compounds in the atmosphere
-Developing of analytical methods for analysis of various organic species
-Comprehensive chemical characterization of biomass conversion product, biomass-burning and vehicle emissions, volatile organic compounds at cannabis grow facilities
- Analysis of organic compounds, including toxic species, in e-cigarette vapors
-Chemical analysis of post-fire soils

Appointments

2018 - present	Associate Research Professor, Desert Research Institute, Division of Atmospheric Sciences, Reno, NV
2018 – 2024	Program Director, Atmospheric Science Graduate Program, University of Nevada, Reno, NV; Desert Research Institute, Division of Atmospheric Sciences, Reno, NV
2014 – 2018	Associate Program Director, Atmospheric Science Graduate Program, University of Nevada, Reno, NV; Desert Research Institute, Division of Atmospheric Sciences, Reno, NV
2008 - 2018	Assistant Research Professor, Desert Research Institute, Division of Atmospheric Sciences, Reno, NV
2007 - 2008	Postdoctoral Research Associate, Desert Research Institute, Division of Atmospheric Sciences, Reno, NV
2004 - 2007	Teacher assistant, Analytical organic chemistry, Swiss Federal Institute of Technology, Zurich, Switzerland
2002 - 2003	Teacher assistant, Inorganic chemistry, Swiss Federal Institute of Technology, Zurich, Switzerland
2002 – 2007	Swiss Federal Institute of Technology, Zurich (ETHZ), Switzerland; PhD project: Investigation of high molecular weight compounds in organic urban aerosols (Supervisor: Prof. Renato Zenobi)
1997 - 2002	Moscow State Lomonosov University (MSU), Russia Diploma project: Determination of lipopolysaccharides by thermal lens and spectrophotometric methods; Analytical Chemistry Department, Laboratory of Spectroscopy (Supervisor: Dr. Michail Proskurnin)

Work Experience

2010 – Present	Teaching. Atmospheric Chemistry 412/612, University of Nevada, Reno, USA
2009 – Present	Teaching. Air Pollution 412/612, University of Nevada, Reno, USA
Spring 2022	Teaching. Organic Chemistry (CHEM 220), Truckee Meadows Community College, Reno, Nevada, USA
Spring 2013	Teaching. Air Quality Measurements and Data Analysis 792, University of Nevada, Reno, USA
Spring 2008	Teaching. Atmospheric Chemistry and Air Pollution Measurements 612/712, University of Nevada, Reno, USA
2003 – 2007	Teaching. Analytical chemistry (Liquid Chromatography), Swiss Federal Institute of Technology, Zurich (ETHZ), Switzerland
Oct.- Feb. 2004/05	Swiss Federal Institute of Technology, Zurich (ETHZ), Switzerland
Oct.- Feb. 2003/04	Teaching. Inorganic Chemistry, first semester
Jan. - May 2002	Supervisor of two semester theses in Analytical Chemistry Department of Analytical Chemistry, Moscow State Lomonosov University (MSU), Russia
June - Sep. 2001	Exchange student in the group of Air Pollution / Environmental Technology at the Materials Science and Technology Academy, EMPA, Dübendorf, Switzerland. Acquired training in: HPLC, FTIR
May - July 2000	Summer practice. Sewage disposal plant, chemical analysis of water, Maloyaroslavets, Russia

Awards

2023: The paper "Modifications of Soil Hydroscopic and Chemical Properties Caused by Four Recent California" was selected by the editors as the cover of the FIRE journal issue 5: https://www.mdpi.com/2571-6255/6/5

2020: The winner of TOXICS 2020 Best Paper Award: Samburova, V. et al. (2018). Aldehydes in Exhaled Breath during E-Cigarette Vaping: Pilot Study Results, Toxics, 6 (3), 46, 10.3390/toxics6030046

2017: The Peter B. Wagner Medal of Excellence Award for DRI Scholars in the Early Stages of Career Development

2018: The Nevada System of Higher Education (NSHE) Board of Regents Rising Researcher Award

Analytical Capabilities and Skills

- MALDI-TOF mass spectrometry
- ^{1}H-NMR and ^{13}C-NMR
- FTIR-spectroscopy
- Liquid chromatography mass spectrometry (LC-MS)
- ESI and APCI MS and MS/MS
- UV- spectroscopy
- Thermolens spectrometry
- Gas Chromatography Mass spectrometry (GC/MS)

- Thermal Desorption GC/MS
- Fourier Transform Ion Cyclotronic Resonance Ultra High Resolution Mass Spectrometry (FT-ICR MS)
- Electron Microscopy

Service to the Scientific Community

June 2012 –2015: Chair of AB2 (Atmospheric Chemistry) section of the Air & Waste Management Association (AWMA, USA)

August 2012 – June 2018: Associate Director for the Graduate Program in Atmospheric Sciences at UNR

December 2011 – 2018: Secretary of the Eastern Sierra Chapter Air & Waste Management Association.

2002 – 2007: member of Swiss Chemical Society (Switzerland)

2009 – present time: Chair of committee of Peter Wagner Memorial Award for Women in Atmospheric Sciences (USA).

2006 – present time. Reviewer:

- Journal of Geophysical Research
- Talanta
- Atmospheric Science and Technology
- Atmospheric Chemistry and Physics
- Air Quality, Atmosphere and Health
- Journal of Hazardous Materials
- Journal of Atmospheric Chemistry
- Atmospheric Environment
- Environmental Science and Technology
- Analytical and Bioanalytical Chemistry
- Toxics
- Environmental Chemistry

ScholarGoogle link: https://scholar.google.com/citations?user=9CpRirUAAAAJ&hl=en

Invited Speaker

- Lecture, “Winter School of Cryospheric Sciences of the Southern Hemisphere”, Universidad Técnica Federico Santa María Centro de Tecnología Ambientales, Chile, August 2025
- Rostock University, Germany, “Sampling and chemical analysis of post-fire soil samples collected during lab burns and after 2021 megafires (Dixie, Beckwourth, and Caldor fires)”, October 18th, 2022
- The Utah University, “E-cigarettes. Are they good or bad?” September 11, 2019
- Nevada Tobacco Prevention Coalition Meeting, “E-cigarettes. Are They as Safe as Advertised?” March 8, 2017
- Key-note speaker at the 216th 2YC3 conference, “E-cigarettes. Are They as Safe as Advertised?” April 1, 2017
- UC Davis, “Atmospheric Organic Aerosols. Are they Important?” October 18, 2016

List of Publications

Bahdanovich, P., Axelrod, K., Khlystov, A. Y., & **Samburova, V**. (2024). Characterization of organic species and functional groups in pollen, fungi, algae, and bacteria bioaerosols. *Environmental Science: Atmospheres*.

Raeofy, Y., **Samburova, V.**, Berli, M., Sion, B., & Moosmüller, H. (2023). Hyperspectral Reflectance and Chemical Composition of Pre-and Post-Fire Soils from Three 2021 Western USA Megafires. Fire, 6(12), 471.

Axelrod, K., Bhattarai, C., Bahdanovich, P., **Samburova, V**., & Khlystov, A. Y. (2023). The volatility of pollen extracts and their main constituents in aerosolized form via the integrated volume method (IVM) and the volatility basis set (VBS). Aerosol Science and Technology, 57(12), 1236-1250.

Samburova, V., Schneider, E., Rüger, C. P., Inouye, S., Sion, B., Axelrod, K., Bahdanovich, P., Friederici, L., Raeofy, Y., Berli, M., Lutz, A. D., Zimmermann, R., Moosmüller, H. (2023)., USA Megafires, Fire, 6 (5), 186, 10.3390/fire6050186

Sion, B., **Samburova, V**., Berli, M., Baish, C. J., Bustarde, J., Houseman-Lehman, S. M. (2023). Assessment of the Effects of the 2021 Caldor Megafire on Soil Physical Properties, Eastern Sierra Nevada, USA, Fire, 6 (2). MDPI, 10.3390/fire6020066

Sengupta, D., **Samburova, V**., Bhattarai, C., Moosmüller, H., Khlystov, A. Y. (2023). Emission Factors for Polycyclic Aromatic Hydrocarbons from Laboratory Biomass-Burning and Their Chemical Transformations During Aging in an Oxidation Flow Reactor, Sci. Total Environ., 870, 161857, 10.1016/j.scitotenv.2023.161857

Kruger, B. R., Hausner, M. B., Chellman, N. J., Weaver, M. R., **Samburova, V**., Khlystov, A. Y. (2023). Dissolved black carbon as a potential driver of surface water heating dynamics in wildfire-impacted regions: A case study from Pyramid Lake, NV, USA, Science of the Total Environment, 888, 164141, 10.1016/j.scitotenv.2023.164141

Iaukea-Lum, M., Bhattarai, C., Sengupta, D., **Samburova, V.**, Khlystov, A. Y., Watts, A. C., Arnott, W. P., Moosmüller, H. (2022). Optical Characterization of Fresh and Photochemically-Aged Aerosols Emitted from Laboratory Siberian Peat Burning, Atmosphere, 13, 386. MDPI: Basel, Switzerland, 10.3390/atmos13030386

Bahdanovich, P., Axelrod, K., Khlystov, A. Y., **Samburova, V**. (2022). Optimized Spectrophotometry Method for Starch Quantification, Analytica, 3 (4), 394-405, https://www.mdpi.com/2673-4532/3/4/27

Samburova, V., Shillito, R. M., Berli, M., Khlystov, A. Y., Moosmuller, H. (2021). Effect of Biomass-Burning Emissions on Soil Water Repellency: A Pilot Laboratory Study, Fire, 4 (2), 10.3390/fire4020024

Zhang, T., Bhattarai, C., Son, Y., **Samburova, V**., Khlystov, A. Y., Varganov, S. (2021). Reaction Mechanisms of Anisole Pyrolysis at Different Temperatures: Experimental and Theoretical Studies, Energy & Fuels, 35 (12), 9994–10008, ACS Publications

Axelrod, K., **Samburova, V**., Khlystov, A. Y. (2021). Relative abundance of saccharides, free amino acids, and other compounds in specific pollen species for source profiling of atmospheric aerosol, Science of the Total Environment, 799, Article No. 149254, 10.1016/j.scitotenv.2021.149254

Hatchett, B. J., Benmarhnia, T., Guirguis, K., VanderMolen, K.A., Gershunov, A., Kerwin, H., Khlystov, A. Y., **Samburova, V.** (2021). Mobility data aids assessment of human responses to extreme environmental conditions, The Lancet Planetary Health, 5 (10), e665-e667, 10.1016/S2542-5196(21)00261-8

Son, Y., Bhattarai, C., **Samburova, V**., Khlystov, A. Y. (2020). Carbonyls and Carbon Monoxide Emissions from Electronic Cigarettes Affected by Device Type and Use Patterns, International Journal of Environmental Research and Public Health, 17 (8), 2767, 10.3390/ijerph17082767

Rennie, M., **Samburova, V**., Sengupta, D., Bhattarai, C., Arnott, W. P., Khlystov, A. Y., Moosmüller, H. (2020). Emissions from the Open Laboratory Combustion of Cheatgrass (Bromus Tectorum), Atmosphere, 11 (4), 406

Ebersole, J., **Samburova, V**., Son, Y., Cappelli, D., Demopoulos, C., Capurro, A., Pinto, A., Chrzan, B., Kingsley, K., Howard, K., Clark, N., Khlystov, A. Y. (2020). Harmful chemicals emitted from electronic cigarettes and potential deleterious effects in the oral cavity, Tobacco Induced Disease, 18 (May), 41, 10.18332/tid/116988

Son, Y., Giovenco, D., Delnevo, C., Khlystov, A. Y., Samburova, V., Meng, Q. (2020). Indoor Air Quality and Passive E-cigarette Aerosol Exposures in Vape-shops, Nicotine and Tobacco Research, Accepted.

Beres, N. D., Sengupta, D., **Samburova, V**., Khlystov, A. Y., Moosmüller, H. (2020). Deposition of Brown Carbon onto Snow: Changes of Snow Optical and Radiative Properties, Atmos. Chem. Phys., 20, 6095-6114, 10.5194/acp-20-6095-2020

Watts, A. C., **Samburova, V**., Moosmüller, H. (2020). Criteria-Based Identification of Important Fuels for Wildland Fire Emission Research, Atmosphere, 11 (6), 640, 10.3390/atmos11060640

Sengupta, D., **Samburova, V**., Bhattarai, C., Watts, A. C., Moosmüller, H., Khlystov, A. Y. (2020). Polar semivolatile organic compounds in biomass-burning emissions and their chemical transformations during aging in an oxidation flow reactor, Atmospheric Chemistry and Physics, 20, 8227-8250, 10.5194/acp-20-8227-2020

Samburova, V., McDaniel, M. R., Campbell, D. E., Wolf, M., Stockwell, W. R., Khlystov, A. Y. (2019). Dominant Volatile Organic Compounds (VOCs) measured at four Cannabis growing facilities: Pilot study results, Journal of the Air & Waste Management Association, doi: 10.1080/10962247.2019.1654038

Clegg, S. L., Mazzoleni, L. R., **Samburova, V**., Taylor, N. F., Collins, D. R., Schum, S. K., Hallar, A. G. (2019). Modelling the hygroscopic growth factors of aerosol material containing a large water-soluble organic fraction, collected at the Storm Peak Laboratory, Atmospheric Environment, doi: 10.1016/j.atmosenv.2019.05.068 Accepted

Nelson, K. N., Boehmler, J., Khlystov, A. Y., Moosmüller, H., **Samburova, V**., Bhattarai, C., Wilcox, E.M., Watts, A. C. (2019). A Multipollutant Smoke Emissions Sensing and Sampling Instrument Package for Unmanned Aircraft Systems: Development and Testing, Fire, 2, 32, doi: 10.3390/fire2020032

Son, Y., Mishin, V., Laskin, J. D., Mainelis, G., Wackowski, O. A., Delnevo, C., Schwander, S., Khlystov, A. Y., **Samburova, V**., Meng, Q. (2019). Hydroxyl Radicals in E-cigarette Vapor and E-vapor Oxidative Potentials under Different Vaping Patterns, Chemical research in toxicology, doi: 10.1021/acs.chemrestox.8b00400

Samburova, V., Bhattarai, C., Strickland, M., Darrow, L., Angermann, J., Son, Y., Khlystov, A. Y. (2018). Aldehydes in Exhaled Breath during E-Cigarette Vaping: Pilot Study Results, Toxics, 6, (3), 46, doi: 10.3390/toxics6030046

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

Sengupta, D., **Samburova, V**., Bhattarai, C., Kirillova, E., Mazzoleni, L., Iaukea-Lum, M., Watts, A. C., Moosmüller, H., Khlystov, A. Y. (2018). Light absorption by polar and non-polar aerosol compounds from laboratory biomass combustion, Atmos. Chem. Phys. Discuss., 18, 10849-10867, doi: 10.5194/acp-2018-161

Khlystov, A. Y., **Samburova, V**., 2017: Response to Comment on "Flavoring Compounds Dominate Toxic Aldehyde Production during E Cigarette Vaping", 2017, Environ. Sci. Technol., 51 (4), 2493-2494, doi: 10.1021/acs.est.7b00163

Taylor, N., Collins, D., Lowenthal, D. H., McCubbin, I. B., Hallar, A., **Samburova, V**., Zielinska, B. K., Kumar, N., Mazzoleni, L., 2017: Hygroscopic Growth of Water Soluble Organic Carbon Isolated from Atmospheric Aerosol Collected at U.S. National Parks and Storm Peak Laboratory, Atmos. Chem. Phys., 17 (4), 2555–2571, doi: 10.5194/acp-17-2555-2017

Samburova, V., Zielinska, B. and Khlystov, A., 2017. Do 16 Polycyclic Aromatic Hydrocarbons Represent PAH Air Toxicity? Toxics, 5(3), 17.

Khlystov, A. Y., **Samburova, V**., 2016: Flavoring Compounds Dominate Toxic Aldehyde Production during E-Cigarette Vaping, Environ. Sci. Technol., 50 (23), 13080-13085, October 27, 2016, doi: 10.1021/acs.est.6b05145

Samburova, V., Connolly, J., Gyawali, M., Yatavelli, R., Watts, A. C., Chakrabarty, R., Zielinska, B. K., Moosmuller, H., Khlystov, A. Y., 2016: Polycyclic aromatic hydrocarbons in biomass-burning emissions and their contribution to light absorption and aerosol toxicity, Sci. of Tot, Environ., 568, 391-401, http://dx.doi.org/10.1016/j.scitotenv.2016.06.026

Yatavelli, R. L., Chen, L.-W. A., Knue, J., **Samburova, V**., Gyawali, M., Watts, A. C., Chakrabarty, R. K., Moosmüller, H., Hodzic, A., Wang X., 2017: "Emissions and Partitioning of Intermediate-Volatility and

Semi-Volatile Polar Organic Compounds (I/SV-POCs) During Laboratory Combustion of Boreal and Sub-Tropical Peat." Aeros. Sci. Engineer. 1(1): 25-32.

Chakrabarty, R. K., Gyawali, M., Yatavelli, L., Pandey, A., Watts, A. C., Knue, J. D., Chen, L.-W.A., Pattison, R. R., Tsibart, A. T., **Samburova, V**., Moosmuller, H., 2016: Brown carbon aerosols from burning of boreal peatlands: microphysical properties, emission factors, and implications for direct radiative forcing. Atmos. Chem. Physics, 16(5), 3033-3040.

Chakrabarty, R. K., Gyawali, M., Yatavelli, L., Pandey, A., Watts, A. C., Knue, J. D., Chen, L.-W.A., Pattison, R. R., Tsibart, A. T., **Samburova, V**., Moosmuller, H., 2015: Dominance of brown carbon in aerosol emissions from burning of boreal peatlands. Atmos. Chem. Physics, Discuss., 15, 28793-28813.

Taylor, N., Collins, D., Lowenthal, D. H., Zielinska, B. K., **Samburova, V**., Kumar, N., Hallar, G., Mazzoleni, L., McCubbin, I. B., 2016: Hygroscopic Growth of Water Soluble Organic Carbon Isolated from Atmospheric Aerosol Collected at U.S. National Parks and Storm Peak Laboratory, Atmos. Chem. Phys. Discuss., doi: 10.5194/acp-2016-715, doi: 10.5194/acp-2016-715

Hathwaik, L. T., Redelman, D., **Samburova, V**., Zielinska, B. K., Shintani, D. K., Harper, J. F., Cushman, J. C., 2015: Transgressive, reiterative selection by continuous buoyant density gradient centrifugation of Dunaliella salina results in enhanced lipid and starch content. Algal Res., 9, 194-204.

Lowenthal, D. H., Zielinska, B. K., **Samburova, V**., Collins, D., Taylor, N., Kumar, N., 2015: Evaluation of Assumptions for Estimating Chemical Light Extinction at U.S. National Parks. J. Air & Waste Manage. Assoc., 65(3), 249-260.

Zielinska, B. K., Campbell, D. E., **Samburova, V**., 2014: Impact of Emissions from Natural Gas Production Facilities on Ambient Air Quality in the Barnett Shale Area: a Pilot Study. J. Air & Waste Manage. Assoc., 64(12), 1369-1383.

Hallar, A., Lowenthal, D. H., Clegg, S. L., **Samburova, V**., Taylor, N., Mazzoleni, L. R., Zielinska, B. K., Kristensen, T. B., Chirokova, G., McCubbin, I. B., Dodson, C. D., Collins, D., 2013: Chemical and hygroscopic properties of aerosol organics at Storm Peak Laboratory. J. Geophys. Res.-Atmos., 118, 4767-4779.

Samburova, V., Lemos, M.S., Hiibel, S., Hoekman, S.K., Cushman, J., Zielinska, B., (2013), Analysis of triacylglycerols and free fatty acids in algae using ultra-performance liquid chromatography mass spectrometry. J. Amer. Oil Chemists' Soc., 90(1), 53-64.

Samburova, V., Hallar, A. G., Mazzoleni, L. R., Saranjampour, P., Lowenthal, D., Kohl, S. D., Zielinska, B., 2013: Composition of water-soluble organic carbon in non-urban atmospheric aerosol collected at the Storm Peak Laboratory. Environ. Chem., 10(5), 370-380.

Mazzoleni, L.R., P. Saranjampour, M.M. Dalbec, V. Samburova, A.G. Hallar, B. Zielinska, D. Lowenthal, and Kohl, S. (2012), Identification of Water-Soluble Organic Carbon in Nonurban Aerosols using Ultrahigh-Resolution FT-ICR Mass Spectrometry: Organic Anions. Environ. Chem., 9(3), 285-297.

Fisseha, R., Saurer, M., Jäggi, M.,. Siegwolf, R.T.W., Dommen, J., Szidat, S., **Samburova, V**., Baltensperger, U. (2009), Determination of primary and secondary sources of organic acids and carbonaceous aerosols using stable carbon isotopes. Atmos. Environ, 43(2), 431-437.

Lowenthal, D., Zielinska, Mason, B., Samy, S., **Samburova, V**., Collins, V., Spencer, C., Taylor, N., Allen, J., and Kumar, N. (2009), Aerosol characterization studies at Great Smoky Mountains National Park, summer 2006. J. Geophys. Res., 114, D08206, doi:10.1029/2008JD011274.

Vesna, O., Sjogren, S., Weingartner E., **Samburova, V**., Kalberer, M., Gaggeler, HW., Ammann M. (2008), Changes of fatty acid aerosol hygroscopicity induced by ozonolysis under humid conditions. Atmos. Chem. Phys., 8(16), 4683-4690.

Samburova, V., Didenko, T., Kunenkov, E., Emmenegger, C., Zenobi, R., Kalberer, M. (2007), Functional group analysis of high-molecular weight compounds in the water-soluble fraction of organic aerosols. Atmos. Environ.., 41, 4703-4710.

Fisseha, R., Dommen, J., Gaeggeler, K., Weingartner, E., **Samburova, V**., Kalberer, M., et al. (2006), Online gas and aerosol measurement of water soluble carboxylic acids in Zurich. J Geophys Res Atm, 111, D12316, doi: 10.1029/2005JD006782.

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Emmenegger, C., Kalberer, M., **Samburova, V**., Zenobi, R. (2005), High time resolution and size-segregated analysis of aerosol-bound polycyclic aromatic hydrocarbons. Environ. Sci. Technol., 39(11), 4213-4219.

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Publication in Encyclopedia

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Reports/Patents

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Samburova, V. External program review (2020). Atmospheric Sciences Graduate Program (UNR/DRI)

Khlystov, A. Y., **Samburova, V**., Pitchford, M. L. (2022). Electronic cigarette, United States Patent, September 6, 2022, US 11,439,582 B2