DR. MISKA OLIN

multiphase chemistry Ansys Fluent laboratory infrastructure development real-world emissions particle emissions chamber construction environmental chambers aerosol dynamics inverse modelling CI-APi-TOF aerosol physics SP-AMS binPMF vehicle emissions student mentoring field experiments Vocus PTR particle coating FIGAERO modelling mobile experiments mass spectrometry air toxins chamber chemistry Linux & UNIX programming LaTeX air quality positive matrix factorization (PMF) Matlab Fortran PMCAMx-UF experimental concentration mapping mobile laboratory aerosol computational fluid dynamics (CFD) particle size distributions particle concentrations regional CTM vehicle chase measurements

CONTACT

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College Station, TX, USA
linkedin.com/in/miska-olin
orcid.org/0000-0001-8034-3473

SKILLS

Measurement experience

Field experiments
Laboratory experiments
Mobile experiments
Aerosol measurements
(CPC, SMPS, SEMS, ELPI, PSM, EEPS, AE33)
Chemical measurements
(CI-APi-TOF: NO_3^-, I^-; Vocus PTR-CIMS: H_3O^+, NH_4^+, NO^+, O_2^+; Vocus AIM-CIMS: I^-, $Acet^+$, $Benz^+$; FIGAERO; SP-AMS)
Secondary aerosol reactors
(Chambers, flow reactors)

Data analysis

Mass spectrometric data
Particle size distributions
Particle concentrations
Positive matrix factorization
Gas sensors

Programming

Matlab
C
LaTeX
Fortran
Bash
Python
Github

Software

ANSYS Fluent (CFD)
Matlab
Linux, UNIX
PMCAMx-UF (CTM)

Modelling

Comput. fluid dynamics
Aerosol dynamics
Particle size distributions
Inverse modelling
Chamber chemistry

Languages

Finnish
English
German
Swedish

WORK EXPERIENCE

08/2023 - Current
Department of Atmospheric Sciences, Texas A&M University
Postdoctoral Research Associate

01/2021 - 07/2023
Aerosol Physics Laboratory, Tampere University
Postdoctoral Research Fellow

01/2014 - 07/2023
Physics Student Laboratory, Tampere University
Hourly-Paid Teacher

01/2014 - 12/2020
Aerosol Physics Laboratory, Tampere University
Doctoral Student

05/2010 - 12/2013
Aerosol Physics Laboratory, Tampere University of Technology
Research Assistant

EDUCATION

01/2014 - 10/2020
Tampere University
Doctor of Science (Technology)
Major: Physics. Thesis: *On Sulfuric Acid and Nanocluster Formation in Vehicle Exhaust*

06/2012 - 12/2013
Tampere University of Technology
Master of Science (Technology)
GPA: 4.19/5 (with distinction). Major: Advanced Engineering Physics.
Thesis: *Simulation of the Formation Process of Diesel Exhaust Particle Emissions*

09/2009 - 06/2012
Tampere University of Technology
Bachelor of Science (Technology)
GPA: 4.31/5 (with distinction). Major: Advanced Engineering Physics.
Thesis: *Numerical Simulation of the Dilution Process of Diesel Exhaust*

GRANT PERIODS AND AWARDS

8/2024 Finnish Association for Aerosol Research Award
11/2020 - 01/2021 Finnish Cultural Foundation
01/2015 - 12/2018 Tampere University of Technology Graduate School Grant
01/2014 - 12/2014 Maj and Tor Nessling Foundation

PUBLICATION STATISTICS

Total peer-reviewed publications: 23
First author peer-reviewed publications: 10
Total citations: 481
h-index: 10
Total count of acting as a reviewer for scientific journals: ∼30

OTHER RESEARCH OUTPUT

- Developer of Modal aerosol dynamics model for computational fluid dynamics (CFD-TUTMAM)
- Developer of TUTAMUChAM chamber aerosol and chemistry model
- Developer of Combined power law and log-normal particle size distribution (PL+LN) method

MISKA OLIN - PUBLICATION LIST

1. Peer-reviewed publications as the first author

Aug 2023 **Engine preheating under real-world subfreezing conditions provides less than expected benefits to vehicle fuel economy and emission reduction for light-duty vehicles**

Peer-reviewed article
Applied Energy, 351, 121805, 2023
Authors: **Miska Olin**, Ville Leinonen, Sampsa Martikainen, Ukko-Ville Mäkinen, Henri Oikarinen, Santtu Mikkonen, Panu Karjalainen

Jun 2023 **High Particle Number Emissions Determined with Robust Regression Plume Analysis (RRPA) from Hundreds of Vehicle Chases**

Peer-reviewed article
Environmental Science & Technology, 57, 8911-8920, 2023
Authors: **Miska Olin**, Henri Oikarinen, Petteri Marjanen, Santtu Mikkonen, Panu Karjalainen

Jun 2022 **Measurement report: Atmospheric new particle formation in a coastal agricultural site explained with binPMF analysis of nitrate CI-APi-TOF spectra**

Peer-reviewed article
Atmospheric Chemistry and Physics, 22, 8097-8115, 2022
Authors: **Miska Olin**, Magdalena Okuljar, Matti P. Rissanen, Joni Kalliokoski, Jiali Shen, Lubna Dada, Markus Lampimäki, Yusheng Wu, Annalea Lohila, Jonathan Duplissy, Mikko Sipilä, Tuukka Petäjä, Markku Kulmala, Miikka Dal Maso

Jan 2022 **Contribution of traffic-originated nanoparticle emissions to regional and local aerosol levels**

Peer-reviewed article
Atmospheric Chemistry and Physics, 22, 1131-1148, 2022
Authors: **Miska Olin**, David Patoulias, Heino Kuuluvainen, Jarkko V. Niemi, Topi Rönkkö, Spyros N. Pandis, Ilona Riipinen, Miikka Dal Maso

Dec 2020 **CFD modeling the diffusional losses of nanocluster-sized particles and condensing vapors in 90° bends of circular tubes**

Peer-reviewed article
Journal of Aerosol Science, 150, 105618, 2020
Authors: **Miska Olin**, Miikka Dal Maso

Aug 2020 **On Sulfuric Acid and Nanocluster Formation in Vehicle Exhaust**

D.Sc. Thesis
Tampere University
Author: **Miska Olin**

Jan 2020 **Traffic-originated nanocluster emission exceeds H_2SO_4-driven photochemical new particle formation in an urban area**

Peer-reviewed article
Atmospheric Chemistry and Physics, 20, 1-13, 2020
Authors: **Miska Olin**, Heino Kuuluvainen, Minna Aurela, Joni Kalliokoski, Niina Kuittinen, Mia Isotalo, Hilkka J. Timonen, Jarkko V. Niemi, Topi Rönkkö, Miikka Dal Maso

May 2019 **Inversely modeling homogeneous H_2SO_4-H_2O nucleation rate in exhaust-related conditions**

Peer-reviewed article
Atmospheric Chemistry and Physics, 19, 6367-6388, 2019
Authors: **Miska Olin**, Jenni Alanen, Marja R. T. Palmroth, Topi Rönkkö, Miikka Dal Maso

Jun 2016 **Using a combined power law and log-normal distribution model to simulate particle formation and growth in a mobile aerosol chamber**

Peer-reviewed article
Atmospheric Chemistry and Physics, 16, 7067-7090, 2016
Authors: **Miska Olin**, Tatu Anttila, Miikka Dal Maso

May 2015 CFD modeling of a vehicle exhaust laboratory sampling system: sulfur-driven nucleation and growth in diluting diesel exhaust

Peer-reviewed article
Atmospheric Chemistry and Physics, 15, 5305-5323, 2015
Authors: **Miska Olin**, Topi Rönkkö, Miikka Dal Maso

2. Peer-reviewed publications as a co-author

Jun 2024 Dataset of vehicle chase measurements in real-world subfreezing winter conditions

Peer-reviewed data article
Data in Brief, 54, 110481, 2024
Authors: Ville Leinonen, **Miska Olin**, Sampsa Martikainen, Ukko-Ville Mäkinen, Santtu Mikkonen, Panu Karjalainen

Apr 2024 Real-world emissions of nanoparticles, particulate mass and black carbon from a plug-in hybrid vehicle compared to conventional gasoline vehicles

Peer-reviewed article
Environmental Advances, 15, 100454, 2024
Authors: Panu Karjalainen, Ville Leinonen, **Miska Olin**, Kuisma Vesisenaho, Petteri Marjanen, Anssi Järvinen, Pauli Simonen, Lassi Markkula, Heino Kuuluvainen, Jorma Keskinen, Santtu Mikkonen

Oct 2023 Challenges and solutions in determining dilution ratios and emission factors from chase measurements of passenger vehicles

Peer-reviewed article
Atmospheric Measurement Techniques, 16, 5075-5089, 2023
Authors: Ville Leinonen, **Miska Olin**, Sampsa Martikainen, Panu Karjalainen, Santtu Mikkonen

Oct 2023 Influence of anthropogenic emissions on the composition of highly oxygenated organic molecules in Helsinki: a street canyon and urban background station comparison

Peer-reviewed article
Atmospheric Chemistry and Physics, 23, 12965-12983, 2023
Authors: Magdalena Okuljar, Olga Garmash, **Miska Olin**, Joni Kalliokoski, Hilkka Timonen, Jarkko V Niemi, Pauli Paasonen, Jenni Kontkanen, Yanjun Zhang, Heidi Hellén, Heino Kuuluvainen, Minna Aurela, Hanna E Manninen, Mikko Sipilä, Topi Rönkkö, Tuukka Petäjä, Markku Kulmala, Miikka Dal Maso, Mikael Ehn

Jul 2023 The synergistic role of sulfuric acid, ammonia and organics in particle formation over an agricultural land

Peer-reviewed article
Environmental Science: Atmospheres, 3, 1195-1211, 2023
Outstanding Paper from RSC's Environmental Science journals 2023 award
Authors: Lubna Dada, Magdalena Okuljar, Jiali Shen, **Miska Olin**, Yusheng Wu, Laura Heimsch, Ilkka Herlin, Saara Kankaanrinta, Markus Lampimäki, Joni Kalliokoski, Rima Baalbaki, Annalea Lohila, Tuukka Petäjä, Miikka Dal Maso, Jonathan Duplissy, Veli-Matti Kerminen, Markku Kulmala

Sep 2022 Particle number, mass, and black carbon emissions from fuel-operated auxiliary heaters in real vehicle use

Peer-reviewed article
Atmospheric Environment: X, 16, 100189, 2022
Authors: Henri Oikarinen, **Miska Olin**, Sampsa Martikainen, Ville Leinonen, Santtu Mikkonen, Panu Karjalainen

Dec 2021 Chemical and physical characterization of oil shale combustion emissions in Estonia

Peer-reviewed article
Atmospheric Environment: X, 12, 100139, 2021
Authors: Minna Aurela, Fanni Mylläri, Alar Konist, Sanna Saarikoski, **Miska Olin**, Pauli Simonen, Matthew Bloss, Dmitri Nešumajev, Laura Salo, Marek Maasikmets, Mikko Sipilä, Miikka Dal Maso, Jorma Keskinen, Hilkka Timonen, Topi Rönkkö

Aug 2021 Fuel-Operated Auxiliary Heaters Are a Major Additional Source of Vehicular Particulate Emissions in Cold Regions

Peer-reviewed article
Atmosphere, 12, 1105, 2021
Authors: Panu Karjalainen, Markus Nikka, **Miska Olin**, Sampsa Martikainen, Antti Rostedt, Anssi Arffman, Santtu Mikkonen

Jul 2021 Measurement report: The influence of traffic and new particle formation on the size distribution of 1–800 nm particles in Helsinki – a street canyon and an urban background station comparison

Peer-reviewed article
Atmospheric Chemistry and Physics, 21, 9931-9953, 2021
Authors: Magdalena Okuljar, Heino Kuuluvainen, Jenni Kontkanen, Olga Garmash, **Miska Olin**, Jarkko V. Niemi, Hilkka Timonen, Juha Kangasluoma, Yee Jun Tham, Rima Baalbaki, Mikko Sipilä, Laura Salo, Henna Lintusaari, Harri Portin, Kimmo Teinilä, Minna Aurela, Miikka Dal Maso, Topi Rönkkö, Tuukka Petäjä, Pauli Paasonen

Jan 2021 Direct field evidence of autocatalytic iodine release from atmospheric aerosol

Peer-reviewed article
Proceedings of the National Academy of Sciences of the USA, 118, e2009951118, 2021
Authors: Yee Jun Tham, Xu-Cheng He, Qinyi Li, Carlos A. Cuevas, Jiali Shen, Joni Kalliokoski, Chao Yan, Siddharth Iyer, Tuuli Lehmusjärvi, Sehyun Jang, Roseline C. Thakur, Lisa Beck, Deniz Kemppainen, **Miska Olin**, Nina Sarnela, Jyri Mikkilä, Jani Hakala, Marjan Marbouti, Lei Yao, Haiyan Li, Wei Huang, Yonghong Wang, Daniela Wimmer, Qiaozhi Zha, Juhani Virkanen, T. Gerard Spain, Simon O'Doherty, Tuija Jokinen, Federico Bianchi, Tuukka Petäjä, Douglas R. Worsnop, Roy L. Mauldin, Jurgita Ovadnevaite, Darius Ceburnis, Norbert M. Maier, Markku Kulmala, Colin O'Dowd, Miikka Dal Maso, Alfonso Saiz-Lopez, Mikko Sipilä

Jul 2020 Nonvolatile ultrafine particles observed to form trimodal size distributions in non-road diesel engine exhaust

Peer-reviewed article
Aerosol Science and Technology, 54, 1345-1358, 2020
Authors: Heino Kuuluvainen, Panu Karjalainen, Erkka Saukko, Teemu Ovaska, Katriina Sirviö, Mari Honkanen, **Miska Olin**, Seppo Niemi, Jorma Keskinen, Topi Rönkkö

Feb 2020 Detection of gaseous species during KCl-induced high-temperature corrosion by the means of CPFAAS and CI-APi-TOF

Peer-reviewed article
Materials and Corrosion, 71, 222-231, 2020
Authors: Juho Lehmusto, **Miska Olin**, Jan Viljanen, Joni Kalliokoski, Fanni Mylläri, Juha Toivonen, Miikka Dal Maso, Leena Hupa

Jul 2017 Traffic is a major source of atmospheric nanocluster aerosol

Peer-reviewed article
Proceedings of the National Academy of Sciences of the USA, 114, 7549-7554, 2017
Authors: Topi Rönkkö, Heino Kuuluvainen, Panu Karjalainen, Jorma Keskinen, Risto Hillamo, Jarkko V. Niemi, Liisa Pirjola, Hilkka J. Timonen, Sanna Saarikoski, Erkka Saukko, Anssi Järvinen, Henna Silvennoinen, Antti Rostedt, **Miska Olin**, Jaakko Yli-Ojanperä, Pekka Nousiainen, Anu Kousa, Miikka Dal Maso

3. Non peer-reviewed publications as the first author

Nov 2022 Particle number emissions determined with a rapid plume analysis method from hundreds of vehicle chases

Conference abstract
Poster presentation in ACCC-FASN 2022, November 21–22nd, 2022, Tampere, Finland
Authors: **Miska Olin**, Henri Oikarinen, Petteri Marjanen, Santtu Mikkonen, Panu Karjalainen

Aug 2020 Distinguishing the effects of traffic and photochemistry on urban sulfuric acid and nanocluster formation

Conference abstract
Oral presentation in EAC 2020, August 31st – September 4th, 2020, online
Authors: **Miska Olin**, Heino Kuuluvainen, Minna Aurela, Joni Kalliokoski, Niina Kuittinen, Mia Isotalo, Hilkka Timonen, Jarkko Niemi, Topi Rönkkö, Miikka Dal Maso

Sep 2018 Sulfuric Acid and Nanocluster Aerosol Measured in an Urban Street Canyon of Helsinki, Finland

Conference abstract
Oral presentation in IAC 2018, September 2–7th, 2018, St. Louis, MO, USA
Authors: **Miska Olin**, Riina Hietikko, Minna Aurela, Heino Kuuluvainen, Niina Kuittinen, Mia Isotalo, Hilkka Timonen, Jarkko Niemi, Topi Rönkkö, Miikka Dal Maso

Sep 2015 Modelling new particle formation and growth using combined power law and log-normal distribution model

Conference abstract
Poster presentation in EAC 2015, September 6–11th, 2015, Milan, Italy
Authors: **Miska Olin**, Miikka Dal Maso

Mar 2015 Modelling particle distribution using combined power-law and log-normal distribution model

Conference abstract
Poster presentation in NOSA-FAAR Symposium 2015, March 12–13th, 2015, Kuopio, Finland
Authors: **Miska Olin**, Miikka Dal Maso

Jun 2014 Sulfur Driven Nucleation in Diesel Exhaust: Simulations of a Laboratory Sampling System

Conference abstract
Poster presentation in 18th ETH-Conference on Combustion Generated Nanoparticles, June 22–25th, 2014, Zürich, Switzerland
Authors: **Miska Olin**, Miikka Dal Maso, Topi Rönkkö

Mar 2014 Simulation of the Formation Process of Diesel Exhaust Particle Emissions

Conference abstract
Poster presentation in Physics Days 2014, March 11–13th, 2014, Tampere, Finland
Authors: **Miska Olin**, Anssi Arffman, Miikka Dal Maso, Jorma Keskinen, Topi Rönkkö

Dec 2013 Simulation of the Formation Process of Diesel Exhaust Particle Emissions

M.Sc. Thesis
Tampere University of Technology
Author: **Miska Olin**

Jan 2012 Numerical Simulation of the Dilution Process of Diesel Exhaust

B.Sc. Thesis
Tampere University of Technology
Author: **Miska Olin**

4. Manuscripts in review, submitted, and in preparation

2024 Controlled particle growth from β-caryophyllene photo-oxidation in an environmental chamber employing LED UV-C lights

Manuscript in review
Aerosol Science and Technology
Authors: **Miska Olin**, other authors

2025 "Auxiliary heaters and particle emissions"

Manuscript in preparation
Authors: Other authors, **Miska Olin**, other authors

2025 "Real-time PFAS detection"

Manuscript in preparation
Authors: Other authors, **Miska Olin**, other authors

December 14, 2024