Sergey A. Nizkorodov, Chancellor's Professor of Chemistry

BIOSKETCH

Sergey Nizkorodov was born and started his education in Kazakhstan. In 1997, he was invited to finish the last year of his high school education at the M. A. Lavrentyev Specialized Educational Scientific Center of the Novosibirsk State University. In 1988, he started his undergraduate studies in biochemistry at Novosibirsk State University, with his undergraduate research project (1991-93) done at Voevodsky Institute of Chemical Kinetics and Combustion under mentorship of Dr. Nikolai Bazhin and Dr. Vladimir Makarov. He did his Ph.D. research (1993-97) in physical chemistry at Basel University, Switzerland, under mentorship of Dr. Evan Bieske, Dr. Otto Dopfer, and Dr. John Maier. After doing his postdoctoral research in chemical kinetics and reaction dynamics at the University of Colorado at Boulder with Dr. David Nesbitt, and in atmospheric chemistry at the California Institute of Technology with Drs. Mitchio Okumura, Paul Wennberg, Stanley Sander and Geoffrey Blake, he joined the faculty of the Department of Chemistry, University of California, Irvine (UCI) in 2002. He presently has over 200 peer-reviewed papers focusing on atmospheric and physical chemistry. He teaches general, analytical, and atmospheric chemistry courses at UCI, and does research on chemistry of particulate matter in the ambient atmosphere and in indoor environments using state-of-the-art spectroscopic and mass-spectrometric techniques. He has been a research mentor to over 100 graduate, undergraduate, high-school, and postdoctoral students. His research, education, service and public outreach work have been recognized by several awards including Fulbright Scholarship, AAAS Fellowship, Camille Dreyfus Teacher-Scholar Award, AGU Ascent Award, Coblentz Award, UCI Chancellor's Award for Excellence in Fostering Undergraduate Research, Daniel G. Aldrich, Jr. Distinguished University Service Award, and UCI Professor of the Year Award. He served as the President of the American Association for Aerosol Research (AAAR) in 2020-21, a professional organization of about 1000 scientists and engineers working to advance the field of aerosol research and technology, and became an AAAR Fellow in 2022. He has been active in various service roles at UCI and in the research community.

EDUCATION

- **Ph.D. in Chemistry** (Sep 1993–June 1997), *University of Basel, Basel, Switzerland*
- **Diploma of Higher Education in Chemistry** (Sep 1988–June 1993), *Novosibirsk State University, Russia*

EMPLOYMENT

- Chancellor's Professor (2025–present); Professor (2013–2025); Associate Professor (2008–2013); Assistant Professor (2002–2008); *Department of Chemistry, University of California, Irvine, USA*
- Dreyfus Postdoctoral Scholar (Nov 2000–July 2002), *California Institute of Technology, USA*
- Postdoctoral Research Associate (Oct 1997–Oct 2000), *JILA, University of Colorado at Boulder, USA*

SELECT AWARDS

- *Appointed Chancellor's Professor of Chemistry* (2025)
- *UCI Chancellor's Award for Excellence in Fostering Undergraduate Research* (2025 and 2012)
- *Elected Fellow of the American Association for Aerosol Research* (2022)
- *Dr. De Gallow Professor of the Year* (2022)
- *Daniel G. Aldrich, Jr. Distinguished University Service Award* (2022)
- *UCI Award for Outstanding Contributions to Undergraduate Education* (2021 and 2006)
- *Fulbright Scholarship, University of Eastern Finland* (2016–2017)
- *Elected Fellow of the American Association for the Advancement of Science – AAAS* (2015)
- *Ascent Award* from the American Geophysical Union (2013)
- *Camille Dreyfus Teacher-Scholar Award* (2007)
- *Coblentz Award* from the Coblentz Society (2005)
- *Research Innovation Award* from the Research Corporation (2003)

SELECT CONFERENCES ORGANIZED

- Session co-organizer: "Fundamentals of Atmospheric Chemical and Physical Processes" at the 2026 iCACGP-IGAC International Conference in Heraklion, Crete, September 7-11, 2026.
- Symposium co-organizer: "Chemistry of Environmental Interfaces" at the Canadian Societies for Chemistry and Chem. Engineering 2026 Conferences and Exhibition (x2026) in Toronto, May 24-28, 2026

- Vice-Chair (2023) and Co-Chair (2025): Gordon Research Conference on Atmospheric Chemistry.
- Symposium co-organizer: "Chemistry of Atmospheric Aerosols" at the International Chemical Congress of Pacific Basin Societies (Pacifichem), December 16-21, 2021.
- Symposium co-organizer: "Fundamental Chemical Processes Common to Dissolved Organic Matter and Atmospheric Organic Aerosols" at the 2019 ACS Fall Meeting in San Diego, CA, August 25-29, 2019.
- Symposium co-organizer: "Multi-Phase Environmental Chemistry of Aerosols" at the 2017 ACS Spring Meeting in Washington, DC, August 20-24, 2017.
- Symposium co-organizer: "Chemistry of Atmospheric Aerosols" at the 2015 International Chemical Congress of Pacific Basin Societies (Pacifichem), December 15-20, 2015.
- Symposium co-organizer: "Chemistry of Atmospheric Nitrogen-Containing Compounds" at the 2014 ACS Fall Meeting in San Francisco, CA, August 10-14, 2014.
- Symposium co-organizer: "Molecular Chemistry and Physicochemical Properties of Organic Aerosols" at the 2013 American Geophysical Union (AGU) annual meeting, December 9-13, 2013.
- Meeting chair: 31st annual meeting of the American Association for Aerosol Research (AAAR), Minneapolis, MN, October 8-12, 2012. The meeting was attended by 845 people.
- Conference Chair: 28th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere, Irvine, CA, March 3, 2011.
- Symposium co-organizer: "Environmental Chemistry of Aerosols" at the 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem), December 15-20, 2010.
- Conference Chair: 22nd Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere, Irvine, CA, February 14, 2005.

EDUCATION, MENTORSHIP AND OUTREACH

- Coordinated an NSF-funded two-week workshop, AirUCI Summer Workshop in Environmental Chemistry for Science Teachers to improve the level of science education by training science teachers (2005-2014).
- Mentored more than 100 students and postdoctoral researchers. Most of the former mentees have advanced to relevant employment in STEM.
- Served as co-director of NSF REU and Beckman Scholar programs for training undergraduate students. Led a major re-organization of the chemistry degree requirements at UCI resulting in creation of new specializations and more than 10 new courses.

SELECT SERVICE ACTIVITIES

Outside UCI

- ACS Society Committee on Education (SOCED)
  - Chair of the Graduate Student & Postdoctoral Scholars Advisory Board (GSPSAB) (2025-2027)
  - Voting member of SOCED (2025-2027); associate member of SOCED (2021-2024)
- American Association for Aerosol Research:
  - Vice-President Elect (2018-19) → Vice-President (2019-20) → President (2020-21) → Immediate Past President (2021-22), Executive Board of Directors member during 2018-2022.
  - Aerosol Chemistry working group chair for the 2017 annual meeting, elected (2015-2017)
  - Board of Directors member, elected (2013-2016)
- Atmospheric Chemistry and Physics, Associate Editor (2013-…)

At UCI

- Chem-SURF (an NSF REU program) Co-Director at UCI (2019-…)
- Beckman Scholars UCI Program Director (2019-…)
- AirUCI Organized Research Unit, Co-Director (2015-…)
- Graduate admissions and graduate recruiting committee member (2007-09; 2010-14; 2024-…)
- Science in Action Chemistry Department representative (2018-20)
- School of Physical Sciences strategic plan committee member (2017-19)
- Vice-chair for academic programs and curriculum (2016-20)
- Teaching assistant assignment and oversight committee chair (2016-20)
- Committee on undergraduate curriculum chair (2016-20) and member (2020-…)
- Graduate fellowships/awards committee member (2004-11) and chair (2011-14)
- Chemistry website oversight committee member (2011-18)

- Physical chemistry graduate academic advisor (2010-14)
- Subcommittee on Courses and Continuing, Part-Time, and Summer Session Education (SCOC) member (September 1, 2018 – August 31, 2019) and chair (September 1, 2019 – August 31, 2021)
- Upper-division labs oversight committee member (2003-08, 2010-11) and chair (2008-10, 2011-12)
- Divisional Senate Assembly Representative for the School of Physical Sciences (2005-07)
- AirUCI outreach program coordinator for middle/high school science teachers (2005–14)

REPRESENTITIVE PUBLICATIONS

- Over 200 peer-reviewed publications (h-index approaching 70)
- Book co-editor: *Multiphase Environmental Chemistry in the Atmosphere* (2017 ACS Symposium Series), ISBN-10: 0841233632.
- Web-of-Science profile: https://www.webofscience.com/wos/author/record/1096573
- ORCID profile: https://orcid.org/0000-0003-0891-0052
- Google Scholar profile: https://scholar.google.com/citations?user=PTl75TwAAAAJ

Photochemical Processes in Atmospheric Organic Aerosols

1. Hyun Ji (Julie) Lee, Paige K. Aiona, Alexander Laskin, Julia Laskin and Sergey A. Nizkorodov* "Effect of solar radiation on the optical properties and molecular composition of laboratory proxies of atmospheric brown carbon" Environmental Science & Technology, **48** (2014) 10217-10226, **DOI**:10.1021/es502515r. [cited 256 times].

2. Scott A. Epstein, Sandra L. Blair, and Sergey A. Nizkorodov,* "Direct photolysis of α-pinene ozonolysis secondary organic aerosol: effect on particle mass and peroxide content" Environmental Science & Technology, **48** (2014) 11251-11258. **DOI**:10.1021/es502350u. [cited 107 times]

3. Maggie L. Walser, Jiho Park, Anthony L. Gomez, Ashley R. Russell and Sergey A. Nizkorodov,* "Photochemical aging of secondary organic aerosol particles generated from the oxidation of d-limonene" Journal of Physical Chemistry A, **111** (2007) 1907-1913, **DOI:**10.1021/jp066293l. [cited 80 times]

4. Hanna Lignell, Mallory L. Hinks and Sergey A. Nizkorodov,* "Exploring matrix effects on photochemistry of organic aerosols" Proceedings of the National Academy of Sciences, **111** (2014) 13780–13785. **DOI**:10.1073/pnas.1322106111. [cited 66 times]

5. Kurtis T. Malecha and Sergey A. Nizkorodov,* "Photodegradation of secondary organic aerosol particles as a source of small, oxygenated volatile organic compounds" Environmental Science & Technology, **50** (2016) 9990-9997. **DOI**:10.1021/acs.est.6b02313 [cited 73 times]

6. Vahe J. Baboomian, Giuseppe V. Crescenzo, Yuanzhou Huang, Fabian Mahrt, Manabu Shiraiwa, Allan K. Bertram,* and Sergey A. Nizkorodov* "Sunlight can convert atmospheric aerosols into a glassy solid state and modify their environmental impacts" Proceedings of the National Academy of Sciences, **119** (2022) e2208121119. **DOI**:10.1073/pnas.2208121119. [cited 26 times]

7. ***REVIEW***: Christian George,* Markus Ammann, Barbara D'Anna, D. James Donaldson and Sergey A. Nizkorodov, "Heterogeneous photochemistry in the atmosphere" Chemical Reviews, **115** (2015) 4218-4258. **DOI**:10.1021/cr500648z.[cited 553 times]

Chemistry of Light-Absorbing Atmospheric Compounds ("Brown Carbon")

8 Katelyn M. Updyke, Tran B. Nguyen and Sergey A. Nizkorodov,* "Formation of brown carbon via reactions of ammonia with secondary organic aerosols from biogenic and anthropogenic precursors" Atmos. Env. **63** (2012) 22-31**. DOI**:10.1016/j.atmosenv.2012.09.012. [cited 331 times]

9. David L. Bones, Dana K. Henricksen, Stephen A. Mang, Michael Gonsior, Adam P. Bateman, Tran B. Nguyen, William J. Cooper and Sergey A. Nizkorodov,* "Appearance of strong absorbers and fluorophores in limonene-O_3 secondary organic aerosol due to NH_4^+-mediated chemical aging over long time scales" Journal of Geophysical Research: Atmospheres, 115 (2010) D05203, **DOI**:10.1029/2009JD012864. [cited 247 times]

10. Tran B. Nguyen, Paula B. Lee, Katelyn M. Updyke, David L. Bones, Julia Laskin, Alexander Laskin and Sergey A. Nizkorodov,* "Formation of nitrogen- and sulfur-containing light-absorbing compounds

accelerated by evaporation of water from secondary organic aerosols" Journal of Geophysical Research: Atmospheres, **117** (2012) D01207. **DOI**:10.1029/2011JD016944. [cited 231 times]

11. ***REVIEW***: Alexander Laskin,* Julia Laskin and Sergey A. Nizkorodov, "Chemistry of atmospheric brown carbon" Chemical Reviews, **115** (2015) 4335-4382. **DOI**:10.1021/cr5006167. [cited 1303 times]

Molecular-Level Analysis and Properties of Secondary Organic Aerosols

12. Natalie R. Smith, Giuseppe V. Crescenzo, Yuanzhou Huang, Anusha P. S. Hettiyadura, Kyla Siemens, Ying Li, Celia L. Faiola, Alexander Laskin, Manabu Shiraiwa, Allan K. Bertram,* and Sergey A. Nizkorodov,* "Viscosity and liquid-liquid phase separation in healthy and stressed plant SOA" Environmental Science: Atmospheres, **1** (2021) 140-153. **DOI**:10.1039/d0ea00020e [cited 26 times]

13. Hyun Ji (Julie) Lee, Alexander Laskin, Julia Laskin and Sergey A. Nizkorodov,* "Excitation-emission spectra and fluorescence quantum yields for fresh and aged biogenic secondary organic aerosols" Environmental Science & Technology, **47** (2013) 5763–5770. **DOI**:10.1021/es400644c, [cited 125 times].

14. Tran B. Nguyen, Patrick J. Roach, Julia Laskin, Alexander Laskin and Sergey A. Nizkorodov,* "Effect of humidity on the composition of isoprene photooxidation secondary organic aerosol" Atmospheric Chemistry and Physics, **11** (2011) 6931-6944. **DOI**: 10.5194/acp-11-6931-2011. [cited 149 times]

15. Tran B. Nguyen, Julia Laskin, Alexander Laskin and Sergey A. Nizkorodov,* "Nitrogen-containing organic compounds and oligomers in secondary organic aerosol formed by photooxidation of isoprene" Environmental Science & Technology, **45** (2011) 6908-6918. **DOI**: 10.1021/es201611n. [cited 91 times]

16. Maggie L. Walser, Yury Desyaterik, Julia Laskin, Alexander Laskin and Sergey A. Nizkorodov,* "High-resolution mass spectrometric analysis of secondary organic aerosol produced by ozonation of limonene" Physical Chemistry Chemical Physics, **10** (2008) 1009-1022, DOI:10.1039/b712620d. [cited 135 times]

Molecular-Level Analysis and Properties of Biomass and Urban Burning Organic Aerosols

17. Lauren T. Fleming, Peng Lin, James M. Roberts, Vanessa Selimovic, Robert Yokelson, Julia Laskin, Alexander Laskin, and Sergey A. Nizkorodov,* "Molecular composition and photochemical lifetimes of brown carbon chromophores in biomass burning organic aerosol" Atmospheric Chemistry and Physics, **20** (2020) 1105-1129. **DOI**:10.5194/acp-20-1105-2020. [cited 162 times]

18. Lauren T. Fleming, Robert Weltman, Ankit Yadav, Rufus D. Edwards, Narendra K. Arora, Ajay Pillarisetti, Simone Meinardi, Kirk R. Smith, Donald R. Blake and Sergey A. Nizkorodov,* "Emissions from village cookstoves in Haryana, India and their potential impacts on air quality" Atmospheric Chemistry and Physics, **18** (2018) 15169-15182. **DOI**:10.5194/acp-18-15169-2018 [cited 43 times]

19. Lauren T. Fleming, Peng Lin, Alexander Laskin, Julia Laskin, Robert Weltman, Rufus D. Edwards,* Narendra K. Arora, Ankit Yadav, Simone Meinardi, Donald R. Blake, Ajay Pillarisetti, Kirk R. Smith and Sergey A. Nizkorodov,* "Molecular composition of particulate matter emissions from dung and brushwood burning household cookstoves in Haryana, India" Atmospheric Chemistry and Physics, **18** (2018) 2461-2480. **DOI**:10.5194/acp-18-2461-2018. [cited 72 times]

Indoor Air Chemistry

20. Nicole Britigan, Ahmad Alshawa and Sergey A. Nizkorodov,* "Quantification of ozone levels in indoor environments generated by ionization and ozonolysis air-purifiers" JAWMA **56** (2006) 601-610, **DOI**:10.1080/10473289.2006.10464467. [cited 122 times]