Xu-Cheng He

VISITING RESEARCHER

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Education

University of Helsinki *Finland*
PHD ATMOSPHERIC SCIENCE (DISTINCTION) *2018.01 - 2021.09*
- Advisor: Prof. Markku Kulmala

University of Helsinki *Finland*
MSC ATMOSPHERIC SCIENCE *2015.08 - 2017.10*

Yunnan University *China*
BSC ATMOSPHERIC SCIENCE *2011.09 - 2015.07*

Professional Experience

2023.01-Present	**Visiting Researcher (simulation of aerosols)**, University of Cambridge
2017.09-Present	**CLOUD project coordinator for marine runs (3 mos. per year)**, University of Helsinki and CERN
2022.03-2022.12	**Visiting Researcher (global model training)**, Carnegie Mellon University and Finnish Meteorological Institute
2020.09-2021.08	**Visting Researcher (operation of urban observatory)**, Nanjing University and Beijing University of Chemical Technology
2016.06-2017.12	**Research Assistant**, University of Helsinki

Awards

2023	**Invited participant of the Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS XVII)**, Brookhaven National Laboratory	
2022	**Extraordinary Potential Prize of 2021 Chinese Government Award for Outstanding Self-financed Students Abroad (20 awardees globally)**, Ministry of Education, China	*$10,000*
2022	**Dissertation prize, all faculties (4/500)**, University of Helsinki	*€4,000*
2022	**NOSA ECS Aerosologist award (Early Career Scientist)**, Nordic Society for Aerosol Research	
2021	**Outstanding thesis award**, Doctoral school in Natural Sciences, University of Helsinki	*€2,000*
2015	**International student grant**, University of Helsinki	*€1,500*
2015	**Best thesis award (1/43)**, Yunnan University	
2012	**Campus star in science and innovation (10/4000)**, Yunnan University	*¥2,000*

Fellowships & Grants

2025-2026	**co-PI, Constraining the size distribution and chlorine production of ferric chloride aerosols for quantitative atmospheric methane removal**, Spark Climate Solutions	*$ 299,248*
2022-2025	**Postdoctoral researcher fellowship**, Research Council of Finland	*€364,377*
2022	**Postdoctoral research grant**, Jenny and Antti Wihuri foundation	*€56,000*
2018-2021	**Doctoral school fellowship**, University of Helsinki	*ca. €108,000*

Key publications

PUBLICATIONS AS A **CO-FIRST**% OR **CORRESPONDING AUTHOR**#

Summary: 4 manuscripts as first-author and 4 as last-author, in total 10 as corresponding author, including 2 in *Science* and 1 in *Nature*.

2024

J. Shen[%], D.M. Russell[%], J. DeVivo,..., J. Kirkby[#], J. Curtius[#], **X.-C. He**[#], New particle formation from isoprene under upper tropospheric conditions. **Accepted in Nature**. (2024).

B. Rörup, **X.-C. He**[#], J. Shen,..., R. Volkamer, D. Worsnop, K. Lehtipalo, Temperature, humidity, and ionisation effect of iodine oxoacid nucleation. **Environmental Science: Atmosphere**. (2024).

Y. Zhang[%], D. Li[%], **X.-C. He**[#],..., J. Jiang, A. Ding, M. Kulmala, Iodine oxoacids and their roles in sub-3 nanometer particle growth in polluted urban environments. **Atmospheric Chemistry & Physics**. (2024).

2023

X.-C. He[#], M. Simon, S. Iyer, H.-B. Xie[#], ..., N.M. Donahue, M. Sipilä[#], M. Kulmala[#], Iodine oxoacids enhance nucleation of sulfuric acid particles in the atmosphere. **Science**. (2023).

X.-C. He[#], J. Shen[#], S. Iyer,..., J. Mikkilä, M. Sipilä, J. Kangasluoma, Characterisation of gaseous iodine species detection using the multi-scheme chemical ionisation inlet 2 with bromide and nitrate chemical ionisation methods. **Atmospheric Measurement Techniques**. (2023).

F. Ma, H.-B. Xie[#], R. Zhang,..., M. Engsvang, J. Elm, **X.-C. He**[#], Enhancement of Atmospheric Nucleation Precursors on Iodic Acid Induced Nucleation: Predictive Model and Mechanism. **Environmental Science and & Technology**. (2023).

2022

H. Finkenzeller[%#], S. Iyer[%], **X.-C. He**,..., T. Kurten[#], M. Rissanen, R.V. Volkamer[#], The gas-phase formation mechanism of iodic acid as an atmospheric aerosol source. **Nature Chemistry**. (2022).

R. Zhang, H.-B. Xie[#], F. Ma,..., M. Sipilä, M. Kulmala, **X.-C. He**[#], Critical Role of Iodous Acid in Neutral Iodine Oxoacid Nucleation. **Environmental Science & Technology**. 56, 14166-14177 (2022).

2021

M. Wang[%], **X.-C. He**[%#], H. Finkenzeller, S. Iyer, D. Chen,..., M. Rissanen, R. Volkamer, Y. J. Tham[#], N. M. Donahue, M. Sipilä, Measurement of iodine species and sulfuric acid using bromide chemical ionization mass spectrometers. **Atmospheric Measurement Techniques**. 14, 4187-4202 (2021).

X.-C. He[#], Y. J. Tham, L. Dada, M. Wang, H. Finkenzeller,..., N. M. Donahue, R. Volkamer, J. Kirkby[#], D. R. Worsnop, M. Sipilä[#], Role of iodine oxoacids in atmospheric aerosol nucleation. **Science**. 371, 589–595 (2021).

X.-C. He[#], S. Iyer, M. Sipilä, A. Ylisirniö, M. Peltola,..., V.-M. Kerminen, R. C. Flagan, J. Kirkby[#], T. Kurtén, M. Kulmala, Determination of the collision rate coefficient between charged iodic acid clusters and iodic acid using the appearance time method. **Aerosol Science & Technology**. 55, 231–242 (2021).

Y. J. Tham, **X.-C. He**, Q. Li, C. A. Cuevas, J. Shen,..., M. Kulmala, C. O'Dowd, M. Dal Maso, A. Saiz-Lopez[#], M. Sipilä[#], Direct field evidence of autocatalytic iodine release from atmospheric aerosol. **Proceedings of the National Academy of Sciences**. 118 (2021).

2020

M. Wang[%], W. Kong[%], R. Marten, **X.-C. He**,..., J.H. Seinfeld, I. El-Haddad, R.C. Flagan, N.M. Donahue[#], Rapid growth of new atmospheric particles by nitric acid and ammonia condensation. **Nature**. 581 (2020).

2019

D. Zhao, R. Yang[#], Y. Tao, W.K. Zhang and **X.-C. He**, Objective detection of the Kunming quasi-stationary front. **Theoretical and Applied Climatology**. 138 (2019).

2017

S. Iyer[#], **X.-C. He**, N. Hyyttinen, T. Kurtén[#] and M.P. Rissanen, Computational and Experimental Investigation of the Detection of HO2 Radical and the Products of Its Reaction with Cyclohexene Ozonolysis Derived RO2 Radicals by an Iodide-Based Chemical Ionization Mass Spectrometer. **The Journal of Physical Chemistry A**. 121 (2017).

F. Bianchi[#], O. Garmash, **X.-C. He**,..., M. Kulmala, M. Ehn and H. Junninen, The role of highly oxygenated molecules (HOMs) in determining the composition of ambient ions in the boreal forest. **Atmospheric Chemistry and Physics**. 17 (2017).

Total publication count: 52

Total citations: Researchgate (1,988), Google scholar (2,113)

Presentations

Selected Invited Talks

2024.06. **The wake-up call for understanding marine secondary aerosols**. Invited seminar, **University of Helsinki**, Finland

2024.05. **New Insights of Marine Secondary Aerosol Formation Processes**. Invited seminar, **Max Planck Institute for Chemistry**, Germany

2024.04. **Toward understanding aerosol-cloud-climate interactions in the marine atmosphere**. Junior faculty candidate seminar, **Massachussetts Institute of Technology**, USA

2024.04. **Iodine and sulfur oxoacids as the key driving marine and polar secondary aerosol formation**. Invited seminar, **SOLAS open seminar series**

2022.08. **Measurement of Nucleating Clusters at the CLOUD Chamber**. Invited speaker, **Gordon Research Conference**, Italy

2022.05. **Iodine oxoacids: overlooked players in atmospheric aerosol formation**. Invited talk, **Carnegie Mellon University**, USA

2021.01. **Role of iodine in the atmosphere**. Invited talk, **Nanjing University**, China

Contributed Presentations

American Meteorological Society annual meeting (session co-chair, 2023, 2024)

Atmospheric Chemistry Colloquium for Emerging Senior Scientists (Invited, 2023)

Gordon Research Conference - Molecular and Ionic Clusters (Invited talk, 2022)

Gordon Research Conference - Atmospheric Chemistry (Poster, 2023)

European Geosciences Union General Assembly (Talk, 2020, 2021)

International Aerosol Conference (Talk, 2023; Poster, 2017)

European Aerosol Conference (Talk, 2022, 2024; Poster, 2019)

International Conference on Nucleation and Atmospheric Aerosols (Talk, 2023; Poster, 2017)

International Conference on Aerosol Cycle (Talk, 2017)

Free Radical Symposium (Poster, 2017)

Surface Ocean Lower Atmosphere Study (Poster, 2019)

Cryosphere and Atmospheric Chemistry (Poster, 2017)

Teaching Experience

2024	**Synthesis of physical chemistry, experiments, observations and models to understand atmospheric particle formation and climate impact**, Guest Lecturer	*University of Helsinki*
2019	**Climate science at high latitudes: eScience for linking Arctic measurements and modeling**, Teaching Assistant	*University of Helsinki*
2018	**Formation and growth of atmospheric aerosols**, Teaching Assistant	*University of Helsinki*

Outreach & Professional Development

Conference chair

2022-present **Formation and impacts of atmospheric aerosols and cloud condensation nuclei: experiment, observation, and modeling**, Co-chair *American Meteorological Society Annual Meeting*

Manuscript Peer Review

One Earth, Environmental Science & Technology, Environmental Science & Technology Letters, Environmental Science & Technology Air, Atmospheric Chemistry and Physics, Geophysical Research Letters, Journal of Geophysical Research: Atmospheres.

Funding Review

National Science Foundation (USA)

Supervision & Mentoring

2018.05-2023.04	**Jiali Shen**, Co-supervised doctoral student (graduated with a distinction)	*University of Helsinki*
2023.02-present	**Wenjuan Yu**, Co-supervised doctoral student	*University of Helsinki*
2017.09-2024.06	**Rima Baalbaki**, Mentor for part of her doctoral study since 2021.09	*University of Helsinki*
2018.05-2024.06	**Birte Rörup**, Mentor for her doctoral study	*University of Helsinki*
2018.09-2022.05	**Ying Zhang**, Mentor for her M.Sc. degree since 2021.01	*Beijing University of Chemical Technology*
2017.09-present	**Duzitian Li**, Mentor for his B.Sc. and M.Sc. degrees since 2020.10	*Nanjing University*

Media Coverage

Dec 2023	**Chemistry World**, Iodine compounds accelerate cloud formation over oceans and the poles
Oct 2021	**Sciencepost**, L'émission d'iode par l'océan, une influence inattendue sur la banquise arctique
June 2021	**Lab Manager**, The Impact of Clouds on Climate Change
Feb 2021	**The Atlantic**, The Arctic Has a Cloud Problem
Feb 2021	**SCIENMAG**, Climate research: rapid formation of iodic particles over the Arctic
Feb 2021	**PHYS.ORG**, CLOUD at CERN reveals the role of iodine acids in atmospheric aerosol formation
Feb 2021	**ScienceDaily**, How iodine-containing molecules contribute to the formation of atmospheric aerosols, affect climate

Full publications

[1] Federico Bianchi et al. "The role of highly oxygenated molecules (HOMs) in determining the composition of ambient ions in the boreal forest". In: *Atmospheric Chemistry and Physics* 17.22 (Nov. 20, 2017), pp. 13819–13831. ISSN: 1680-7324. DOI: 10.5194/acp-17-13819-2017. URL: https://acp.copernicus.org/articles/17/13819/2017/ (visited on 08/18/2021).

[2] Xu-Cheng He. "From the measurement of halogenated species to iodine particle formation". PhD thesis. Helsinki: University of Helsinki, Aug. 27, 2017. 71 pp. URL: https://helda.helsinki.fi/handle/10138/229173.

[3] Siddharth Iyer et al. "Computational and Experimental Investigation of the Detection of HO_2 Radical and the Products of Its Reaction with Cyclohexene Ozonolysis Derived RO_2 Radicals by an Iodide-Based Chemical Ionization Mass Spectrometer". In: *The Journal of Physical Chemistry A* 121.36 (Sept. 14, 2017), pp. 6778–6789. ISSN: 1089-5639, 1520-5215. DOI: 10.1021/acs.jpca.7b01588. URL: http://pubs.acs.org/doi/10.1021/acs.jpca.7b01588 (visited on 05/15/2018).

[4] Katrianne Lehtipalo et al. "Multicomponent new particle formation from sulfuric acid, ammonia, and biogenic vapors". In: *Science Advances* 4.12 (Dec. 2018), eaau5363. ISSN: 2375-2548. DOI: 10.1126/sciadv.aau5363. URL: http://advances.sciencemag.org/lookup/doi/10.1126/sciadv.aau5363 (visited on 11/24/2019).

[5] Dominik Stolzenburg et al. "Rapid growth of organic aerosol nanoparticles over a wide tropospheric temperature range". In: *Proceedings of the National Academy of Sciences* 115.37 (Sept. 11, 2018), pp. 9122–9127. ISSN: 0027-8424, 1091-6490. DOI: 10.1073/pnas.1807604115. URL: http://www.pnas.org/lookup/doi/10.1073/pnas.1807604115 (visited on 12/09/2019).

[6] Qing Ye et al. "Molecular Composition and Volatility of Nucleated Particles from α-Pinene Oxidation between −50 °C and +25 °C". In: *Environmental Science & Technology* 53.21 (Nov. 5, 2019), pp. 12357–12365. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.9b03265. URL: https://pubs.acs.org/doi/10.1021/acs.est.9b03265 (visited on 09/08/2021).

[7] Di Zhao et al. "Objective detection of the Kunming quasi-stationary front". In: *Theoretical and Applied Climatology* 138.3 (Nov. 2019), pp. 1405–1418. ISSN: 0177-798X, 1434-4483. DOI: 10.1007/s00704-019-02894-w. URL: http://link.springer.com/10.1007/s00704-019-02894-w (visited on 09/08/2021).

[8] Martin Heinritzi et al. "Molecular understanding of the suppression of new-particle formation by isoprene". In: *Atmospheric Chemistry and Physics* 20.20 (Oct. 20, 2020), pp. 11809–11821. ISSN: 1680-7324. DOI: 10.5194/acp-20-11809-2020. URL: https://acp.copernicus.org/articles/20/11809/2020/ (visited on 09/08/2021).

[9] Mario Simon et al. "Molecular understanding of new-particle formation from α-pinene between −50 and +25 °C". In: *Atmospheric Chemistry and Physics* 20.15 (Aug. 3, 2020), pp. 9183–9207. ISSN: 1680-7324. DOI: 10.5194/acp-20-9183-2020. URL: https://acp.copernicus.org/articles/20/9183/2020/ (visited on 09/08/2021).

[10] Dominik Stolzenburg et al. "Enhanced growth rate of atmospheric particles from sulfuric acid". In: *Atmospheric Chemistry and Physics* 20.12 (June 25, 2020), pp. 7359–7372. ISSN: 1680-7324. DOI: 10.5194/acp-20-7359-2020. URL: https://www.atmos-chem-phys.net/20/7359/2020/ (visited on 07/19/2020).

[11] Mingyi Wang et al. "Photo-oxidation of Aromatic Hydrocarbons Produces Low-Volatility Organic Compounds". In: *Environmental Science & Technology* 54.13 (July 7, 2020), pp. 7911–7921. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.0c02100. URL: https://pubs.acs.org/doi/10.1021/acs.est.0c02100 (visited on 09/08/2021).

[12] Mingyi Wang et al. "Rapid growth of new atmospheric particles by nitric acid and ammonia condensation". In: *Nature* 581.7807 (May 2020), pp. 184–189. ISSN: 0028-0836, 1476-4687. DOI: 10.1038/s41586-020-2270-4. URL: http://www.nature.com/articles/s41586-020-2270-4 (visited on 07/19/2020).

[13] Yonghong Wang et al. "Formation of highly oxygenated organic molecules from chlorine-atom-initiated oxidation of alpha-pinene". In: *Atmospheric Chemistry and Physics* 20.8 (Apr. 30, 2020), pp. 5145–5155. ISSN: 1680-7324. DOI: 10.5194/acp-20-5145-2020. URL: https://acp.copernicus.org/articles/20/5145/2020/ (visited on 09/08/2021).

[14] Lisa J. Beck et al. "Differing Mechanisms of New Particle Formation at Two Arctic Sites". In: *Geophysical Research Letters* 48.4 (Feb. 28, 2021). ISSN: 0094-8276, 1944-8007. DOI: 10.1029/2020GL091334. URL: https://onlinelibrary.wiley.com/doi/10.1029/2020GL091334 (visited on 09/17/2021).

[15] Runlong Cai et al. "Impacts of coagulation on the appearance time method for new particle growth rate evaluation and their corrections". In: *Atmospheric Chemistry and Physics* 21.3 (Feb. 16, 2021), pp. 2287–

2304. ISSN: 1680-7324. DOI: 10.5194/acp-21-2287-2021. URL: https://acp.copernicus.org/articles/21/2287/2021/ (visited on 09/08/2021).
[16] Lucía Caudillo et al. "Chemical composition of nanoparticles from α-pinene nucleation and the influence of isoprene and relative humidity at low temperature". In: *Atmospheric Chemistry and Physics* 21.22 (Nov. 25, 2021), pp. 17099–17114. ISSN: 1680-7324. DOI: 10.5194/acp-21-17099-2021. URL: https://acp.copernicus.org/articles/21/17099/2021/ (visited on 11/25/2021).
[17] Biwu Chu et al. "Particle growth with photochemical age from new particle formation to haze in the winter of Beijing, China". In: *Science of The Total Environment* 753 (Jan. 2021), p. 142207. ISSN: 00489697. DOI: 10.1016/j.scitotenv.2020.142207. URL: https://linkinghub.elsevier.com/retrieve/pii/S0048969720357363 (visited on 09/08/2021).
[18] Xu-Cheng He. "Iodine oxoacids in atmospheric aerosol formation : from chamber simulations to field observations". PhD thesis. Helsinki: University of Helsinki, Aug. 23, 2021. 72 pp. URL: https://helda.helsinki.fi/handle/10138/332625?locale-attribute=en.
[19] Xu-Cheng He et al. "Determination of the collision rate coefficient between charged iodic acid clusters and iodic acid using the appearance time method". In: *Aerosol Science and Technology* 55.2 (Feb. 1, 2021), pp. 231–242. ISSN: 0278-6826. DOI: 10.1080/02786826.2020.1839013. URL: https://doi.org/10.1080/02786826.2020.1839013.
[20] Xu-Cheng He et al. "Role of iodine oxoacids in atmospheric aerosol nucleation". In: *Science* 371.6529 (2021), pp. 589–595. ISSN: 0036-8075. DOI: 10.1126/science.abe0298. URL: https://science.sciencemag.org/content/371/6529/589.
[21] Clémence Rose et al. "Investigation of several proxies to estimate sulfuric acid concentration under volcanic plume conditions". In: *Atmospheric Chemistry and Physics* 21.6 (Mar. 24, 2021), pp. 4541–4560. ISSN: 1680-7324. DOI: 10.5194/acp-21-4541-2021. URL: https://acp.copernicus.org/articles/21/4541/2021/ (visited on 09/08/2021).
[22] Mihnea Surdu et al. "Molecular characterization of ultrafine particles using extractive electrospray time-of-flight mass spectrometry". In: *Environmental Science: Atmospheres* (2021), 10.1039.D1EA00050K. ISSN: 2634-3606. DOI: 10.1039/D1EA00050K. URL: http://xlink.rsc.org/?DOI=D1EA00050K (visited on 09/08/2021).
[23] Yee Jun Tham et al. "Direct field evidence of autocatalytic iodine release from atmospheric aerosol". In: *Proceedings of the National Academy of Sciences* 118.4 (Jan. 26, 2021), e2009951118. ISSN: 0027-8424, 1091-6490. DOI: 10.1073/pnas.2009951118. URL: http://www.pnas.org/lookup/doi/10.1073/pnas.2009951118 (visited on 06/09/2021).
[24] Mingyi Wang et al. "Measurement of iodine species and sulfuric acid using bromide chemical ionization mass spectrometers". In: *Atmospheric Measurement Techniques* 14.6 (June 7, 2021), pp. 4187–4202. ISSN: 1867-8548. DOI: 10.5194/amt-14-4187-2021. URL: https://amt.copernicus.org/articles/14/4187/2021/ (visited on 06/09/2021).
[25] Mao Xiao et al. "The driving factors of new particle formation and growth in the polluted boundary layer". In: *Atmospheric Chemistry and Physics* 21.18 (Sept. 27, 2021), pp. 14275–14291. ISSN: 1680-7324. DOI: 10.5194/acp-21-14275-2021. URL: https://acp.copernicus.org/articles/21/14275/2021/ (visited on 12/13/2021).
[26] Chao Yan et al. "The Synergistic Role of Sulfuric Acid, Bases, and Oxidized Organics Governing New-Particle Formation in Beijing". In: *Geophysical Research Letters* 48.7 (Apr. 16, 2021). ISSN: 0094-8276, 1944-8007. DOI: 10.1029/2020GL091944. URL: https://onlinelibrary.wiley.com/doi/10.1029/2020GL091944 (visited on 02/20/2023).
[27] Lisa J. Beck et al. "Diurnal evolution of negative atmospheric ions above the boreal forest: from ground level to the free troposphere". In: *Atmospheric Chemistry and Physics* 22.13 (July 5, 2022), pp. 8547–8577. ISSN: 1680-7324. DOI: 10.5194/acp-22-8547-2022. URL: https://acp.copernicus.org/articles/22/8547/2022/ (visited on 07/09/2022).

[28] Qinyi Li et al. “Role of Iodine Recycling on Sea-Salt Aerosols in the Global Marine Boundary Layer”. In: *Geophysical Research Letters* 49.6 (Mar. 28, 2022). ISSN: 0094-8276, 1944-8007. DOI: 10.1029/2021GL097567. URL: https://onlinelibrary.wiley.com/doi/10.1029/2021GL097567 (visited on 04/25/2022).

[29] Ruby Marten et al. “Survival of newly formed particles in haze conditions”. In: *Environmental Science: Atmospheres* (2022), 10.1039.D2EA00007E. ISSN: 2634-3606. DOI: 10.1039/D2EA00007E. URL: http://xlink.rsc.org/?DOI=D2EA00007E (visited on 04/25/2022).

[30] Jiali Shen et al. “High Gas-Phase Methanesulfonic Acid Production in the OH-Initiated Oxidation of Dimethyl Sulfide at Low Temperatures”. In: *Environmental Science & Technology* 56.19 (Oct. 4, 2022), pp. 13931–13944. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.2c05154. URL: https://pubs.acs.org/doi/10.1021/acs.est.2c05154 (visited on 01/30/2023).

[31] Roseline C. Thakur et al. “An evaluation of new particle formation events in Helsinki during a Baltic Sea cyanobacterial summer bloom”. In: *Atmospheric Chemistry and Physics* 22.9 (May 17, 2022), pp. 6365–6391. ISSN: 1680-7324. DOI: 10.5194/acp-22-6365-2022. URL: https://acp.copernicus.org/articles/22/6365/2022/ (visited on 05/20/2022).

[32] Mingyi Wang et al. “Synergistic HNO_3–H_2SO_4–NH_3 upper tropospheric particle formation”. In: *Nature* 605.7910 (May 19, 2022), pp. 483–489. ISSN: 0028-0836, 1476-4687. DOI: 10.1038/s41586-022-04605-4. URL: https://www.nature.com/articles/s41586-022-04605-4 (visited on 05/20/2022).

[33] Yonghong Wang et al. “Molecular Composition of Oxygenated Organic Molecules and Their Contributions to Organic Aerosol in Beijing”. In: *Environmental Science & Technology* 56.2 (Jan. 18, 2022), pp. 770–778. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.1c05191. URL: https://pubs.acs.org/doi/10.1021/acs.est.1c05191 (visited on 02/28/2022).

[34] Chao Yan et al. “The effect of COVID-19 restrictions on atmospheric new particle formation in Beijing”. In: *Atmospheric Chemistry and Physics* 22.18 (Sept. 19, 2022), pp. 12207–12220. ISSN: 1680-7324. DOI: 10.5194/acp-22-12207-2022. URL: https://acp.copernicus.org/articles/22/12207/2022/ (visited on 01/17/2023).

[35] Rongjie Zhang et al. “Critical Role of Iodous Acid in Neutral Iodine Oxoacid Nucleation”. In: *Environmental Science & Technology* 56.19 (Oct. 4, 2022), pp. 14166–14177. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.2c04328. URL: https://pubs.acs.org/doi/10.1021/acs.est.2c04328 (visited on 10/07/2022).

[36] Lucía Caudillo et al. “An intercomparison study of four different techniques for measuring the chemical composition of nanoparticles”. In: *Atmospheric Chemistry and Physics* 23.11 (June 15, 2023), pp. 6613–6631. ISSN: 1680-7324. DOI: 10.5194/acp-23-6613-2023. URL: https://acp.copernicus.org/articles/23/6613/2023/ (visited on 06/20/2023).

[37] Lubna Dada et al. “Role of sesquiterpenes in biogenic new particle formation”. In: *Science Advances* 9.36 (Sept. 8, 2023), eadi5297. ISSN: 2375-2548. DOI: 10.1126/sciadv.adi5297. URL: https://www.science.org/doi/10.1126/sciadv.adi5297 (visited on 09/17/2023).

[38] Henning Finkenzeller et al. “The gas-phase formation mechanism of iodic acid as an atmospheric aerosol source”. In: *Nature Chemistry* 15.1 (Jan. 2023), pp. 129–135. ISSN: 1755-4330, 1755-4349. DOI: 10.1038/s41557-022-01067-z. URL: https://www.nature.com/articles/s41557-022-01067-z (visited on 06/07/2023).

[39] Xu-Cheng He et al. “Characterisation of gaseous iodine species detection using the multi-scheme chemical ionisation inlet 2 with bromide and nitrate chemical ionisation methods”. In: *Atmospheric Measurement Techniques* 16.19 (Oct. 9, 2023), pp. 4461–4487. ISSN: 1867-8548. DOI: 10.5194/amt-16-4461-2023. URL: https://amt.copernicus.org/articles/16/4461/2023/ (visited on 10/10/2023).

[40] Xu-Cheng He et al. “Iodine oxoacids enhance nucleation of sulfuric acid particles in the atmosphere”. In: *Science* 382.6676 (Dec. 15, 2023), pp. 1308–1314. ISSN: 0036-8075, 1095-9203. DOI: 10.1126/science.adh2526. URL: https://www.science.org/doi/10.1126/science.adh2526 (visited on 12/16/2023).

[41] Fangfang Ma et al. “Enhancement of Atmospheric Nucleation Precursors on Iodic Acid-Induced Nucleation: Predictive Model and Mechanism”. In: *Environmental Science & Technology* 57.17 (May 2, 2023), pp. 6944–

6954. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.3c01034. URL: https://pubs.acs.org/doi/10.1021/acs.est.3c01034 (visited on 09/24/2023).

[42] Wei Nie et al. "NO at low concentration can enhance the formation of highly oxygenated biogenic molecules in the atmosphere". In: *Nature Communications* 14.1 (June 8, 2023), p. 3347. ISSN: 2041-1723. DOI: 10.1038/s41467-023-39066-4. URL: https://www.nature.com/articles/s41467-023-39066-4 (visited on 07/07/2023).

[43] Joschka Pfeifer et al. "Measurement of the collision rate coefficients between atmospheric ions and multiply charged aerosol particles in the CERN CLOUD chamber". In: *Atmospheric Chemistry and Physics* 23.12 (June 20, 2023), pp. 6703–6718. ISSN: 1680-7324. DOI: 10.5194/acp-23-6703-2023. URL: https://acp.copernicus.org/articles/23/6703/2023/ (visited on 06/30/2023).

[44] Mihnea Surdu et al. "Molecular Understanding of the Enhancement in Organic Aerosol Mass at High Relative Humidity". In: *Environmental Science & Technology* (Jan. 30, 2023), acs.est.2c04587. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.2c04587. URL: https://pubs.acs.org/doi/10.1021/acs.est.2c04587 (visited on 01/31/2023).

[45] Yee Jun Tham et al. "Widespread detection of chlorine oxyacids in the Arctic atmosphere". In: *Nature Communications* 14.1 (Mar. 30, 2023), p. 1769. ISSN: 2041-1723. DOI: 10.1038/s41467-023-37387-y. URL: https://www.nature.com/articles/s41467-023-37387-y (visited on 03/31/2023).

[46] Yonghong Wang et al. "Sulfur Dioxide Transported From the Residual Layer Drives Atmospheric Nucleation During Haze Periods in Beijing". In: *Geophysical Research Letters* 50.6 (Mar. 28, 2023). ISSN: 0094-8276, 1944-8007. DOI: 10.1029/2022GL100514. URL: https://onlinelibrary.wiley.com/doi/10.1029/2022GL100514 (visited on 03/16/2023).

[47] Dandan Li et al. "Nitrate Radicals Suppress Biogenic New Particle Formation from Monoterpene Oxidation". In: *Environmental Science & Technology* 58.3 (Jan. 23, 2024), pp. 1601–1614. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.3c07958. URL: https://pubs.acs.org/doi/10.1021/acs.est.3c07958 (visited on 04/07/2024).

[48] Birte Rörup et al. "Temperature, humidity, and ionisation effect of iodine oxoacid nucleation". In: *Environmental Science: Atmospheres* (2024), 10.1039.D4EA00013G. ISSN: 2634-3606. DOI: 10.1039/D4EA00013G. URL: https://xlink.rsc.org/?DOI=D4EA00013G (visited on 05/16/2024).

[49] Meredith Schervish et al. "Interactions of peroxy radicals from monoterpene and isoprene oxidation simulated in the radical volatility basis set". In: *Environmental Science: Atmospheres* 4.7 (2024), pp. 740–753. ISSN: 2634-3606. DOI: 10.1039/D4EA00056K. URL: https://xlink.rsc.org/?DOI=D4EA00056K (visited on 07/24/2024).

[50] Jiali Shen et al. "New particle formation from isoprene under upper tropospheric conditions". In: *Nature* NA (NA Dec. 31, 2024), NA.

[51] Rongjie Zhang et al. "HIO_3–HIO_2-Driven Three-Component Nucleation: Screening Model and Cluster Formation Mechanism". In: *Environmental Science & Technology* 58.1 (Jan. 9, 2024), pp. 649–659. ISSN: 0013-936X, 1520-5851. DOI: 10.1021/acs.est.3c06098. URL: https://pubs.acs.org/doi/10.1021/acs.est.3c06098 (visited on 09/10/2024).

[52] Ying Zhang et al. "Iodine oxoacids and their roles in sub-3 nm particle growth in polluted urban environments". In: *Atmospheric Chemistry and Physics* 24.3 (Feb. 12, 2024), pp. 1873–1893. ISSN: 1680-7324. DOI: 10.5194/acp-24-1873-2024. URL: https://acp.copernicus.org/articles/24/1873/2024/ (visited on 02/13/2024).