
Yinon Rudich – BIOGRAPHICAL SKETCH

a. Professional Preparation

Ben Gurion University, Beer Sheva, Israel	B.Sc. Biophysical Chemistry 1984-1987
Feinberg Graduate School, Weizmann Institute,	M.Sc. Chemical Physics 1987 - 1989
Feinberg Graduate School, Weizmann Institute,	Ph.D. Chemical Physics 1989 - 1994

b. Appointments

2019 – Present	Dean, Faculty of Chemistry, Weizmann Institute of Science, Rehovot, Israel.
2016 – 2019	Head, Department of Earth and Planetary Sciences, Weizmann Institute of Science.
2008 – Present	Professor, EPS, Weizmann Institute of Science, Rehovot, Israel.
2002 – 2008	Associate Professor, EPS, Weizmann Institute of Science, Rehovot, Israel.
1997 – 2002	Senior Researcher, EPS, Weizmann Institute of Science, Rehovot, Israel.
1994 – 1996	NRC Research Associate in Aeronomy Laboratory, NOAA.

c. Publications 255 publications, h-index 73, <https://publons.com/researcher/2688930/yinon-rudich/>, 83 Google scholar.

d. Synergistic Activities

1) Editor *Journal of Geophysical Research – Atmospheres*, American Geophysical Union, 2006-2013. **Associate Editor**, *Atmospheric Chemistry and Physics*, European Geophysical Union, 2004-2018, Associate Editor, *Nature's Communication Earth&Environment*.

2) Services on Boards, Committees, and Advisory Panels:

- **Member**, International steering committee, Tropospheric Ozone Assessment (TOAR)-II (2020-2022).
- **Member**, Steering Committee, National Marine Sciences Program, Israel Academy of Sciences (2020).
- **Member**, Advisory Panel, Atmospheric Chemistry Observations and Modeling (ACOM) Laboratory, National Center for Atmospheric Research (NCAR), Boulder, CO (2019-2021).
- **Member**, Evaluation Panel, large climate projects, Finnish Academy of Sciences (2019, 2021).
- **Member**, Review Board, German Israeli Bi-national Science Foundation and USA-Israel Bi-national Science Foundation, (2015, 2019), Finnish Academy of Sciences (2018,2020, 2021).
- **Member**, Advisory Board, State of Israel – IIASA collaboration (2017-2020).
- **Member**, ERC Advanced Grants Committee (2015,2017,2019)
- **Member**, Transnational Access (TNA) user selection panel EuroChamp2020 (2017-2022).
- **Member**, Scientific Advisory Board, Max Planck Institute for Chemistry (2014-2020).
- **Member**, Review panel, large infrastructures, German Council of Science and Humanities (2016).
- **Chair**, Review Board, Israel Science Foundation, Israel (2016, 2019, 2021).
- **Member**, Scientific Advisory Board, *SPARTAN: A Global Network to Evaluate and Enhance Satellite-Based Estimates of Ground-Level Aerosol for Global Health Application*, From June 2014.
- **Member**, International Scientific Steering Committee (elected), International Geodesy for Atmospheric Chemistry (IGAC), 2011-2015.

4) Honors and Awards:

- Fellow Academia Europea, 2020.
- Fellow of the American Geophysical Union, 2017.
- Fellow of the Royal Society of Chemistry, UK, 2017.
- Distinguished Scholar, Peking University, Beijing 2017.
- Henri Gutwirth Prize, Technion, Israel, 2016.
- Mercator Fellow, German Research Foundation (DFG), 2015-2018.
- Distinguished visiting Professor – Harvard University, ETH Zurich, PKU Beijing.

List of publications last three years (2020-2023)

1. P.H Chowdhury, Q. He, R. Carmieli, C. Li, Y. Rudich, M. Pardo, **Connecting the oxidative potential of secondary organic aerosols to their cytotoxicity**, *Environmental Science and Technology*, **53**, 13949–13958, (2019).
2. M. Pardo, C. Li, Q. He, S. Levin, M. Tsoory, Q. Yu, X. Wang, Y. Rudich, **Mechanisms for lung toxicity induced by biomass burning aerosol**, *Fiber and Particle Toxicity*, **17**, 4 <https://doi.org/10.1186/s12989-020-0337-x> (2020).
3. D.A. Knopf, P.A. Alpert, A. Zipori, N. Reicher, Y. Rudich, **Stochastic nucleation processes and substrate abundance explain time-dependent freezing in supercooled droplets**, *npj Climate and Atmospheric Science*, **3** (2), doi:10.1038/s41612-020-0106-4, (2020).
4. X. Shi, X. Qiu, Z. Cheng, Q. Chen, Y. Rudich, T. Zhu, **Isomeric Identification of Particle-Phase Organic Nitrates through Gas Chromatography and Time-of-Flight Mass Spectrometry Coupled with Electron Capture Ionization**, *Environmental Science and Technology*, **54**, 707-713 (2020).
5. C. Li, Q. He, A. P. S. Hettiyadura, U. Käfer, G. Shmul, D. Median, R. Zimmermann, S.S. Brown, C. George, A. Laskin, Y. Rudich. **Formation of secondary brown carbon in biomass burning aerosol proxies through NO₃ radical reactions**. *Environmental Science and Technology*, **54**, 1395–1405, (2020).
6. J. M. Flores, Bourdin G., Altaratz O., Trainic M., Lang-Yona N., Dzimban E., Steinau S., Tettich F., Planes S., Allemand D., Agostini S., Banaigs B., Boissin E., Boss E., Douville E., Forcioli D., Furla P., Galand P.E., Sullivan M., Gilson É., Lombard F., Moulin C., Pesant S, Poulain J., Reynaud S., Romac S., Sunagawa S., Thomas O.P., Troublé R., de Vargas C., Vega Thurber R., Voolstra C.R., Wincker P., Zoccola D., Bowler C., Tara Pacific Consortium, Gorsky G., Rudich Y., Vardi A., and Koren I., **Tara Pacific expedition's atmospheric measurements. Marine aerosols across the Atlantic and Pacific Oceans: Overview and Preliminary results**. *Bulletin of the American Meteorological Society*, **101**, E536–E554. (2020).
7. N. Lang-Yona, F. Öztürk, D. Gat, M. Aktürk, E. Dikmen, P. Zampas, M. Tsagkaraki, N. Michalopoulos, A. Birgül, P. Binnur, K. Karakuş, Y. Rudich, **Atmospheric Hitchhikers: Long Range Aerial Transport of Microorganisms by Mineral Dust Correlates with Air Mass Meteorological Parameters and Chemical Composition**, *Science of the Total Environment*, **725**, 138227 (2020).
8. N. Bluvshstein, E. Villacorta, C. Li, B. C. Hagen, V. Frette, Y. Rudich, **Early Detection of Smoldering in Silos: Organic Material Emissions as Precursors**, *Fire Safety Journal*, **114**, 103009 (2020).
9. M.D. Tarn, S.N.F. Sikora, G.C.E. Porter, B. V. Wyld, M. Alayof, N. Reicher, A.D. Harrison, Y. Rudich, B. J. Murray and J. Shim, **On-chip Analysis of Atmospheric Ice-Nucleating Particles in Continuous Flow**, *Lab on Chip*, **20**, 2889 (2020).
10. C. Li, Q. He, Z. Fang, S.S. Brown, A. Laskin, S.R. Cohen, Y. Rudich, **Laboratory insights into the diel cycle of optical and chemical transformations of biomass burning brown carbon aerosol**, *Environmental Science and Technology*, **54**, 11827–11837, (2020).
11. A.J. Kalkstein, Y. Rudich, S. Raveh-Rubin, I. Kloog, V Novack, **A Closer Look at the Role of the Cyprus Low on Dust Events in the Negev Desert**, *Atmosphere*, **11**, 1020; doi:10.3390/atmos11101020 (2020).
12. M. Trainic, J.M. Flores, I. Pinkas, M.L. Pedrotti, F. Lombard, G. Bourdin, G. Gorsky, E. Boss, Y. Rudich, A. Vardi, I. Koren **Airborne microplastic particles in the marine atmosphere**, *Communications Earth and Environment*, **1**, Article number: 64 (2020) (2020).

13. J. McNeill, G. Snider, C. L. Weagle, B. Walsh, P. Bissonnette, E. Stone, N. Chisholm, R. Latimer, I. Abboud, C. Akoshile, N. Xuan Anh, R. Balasubramanian, R. Brook, C. Coburn, A. Cohen, J. Dong, D. Griffith, K. He, B. N. Holben, R. Kahn, J-Sung Kim, N. Lagrosas, P. Lestari, Y. Liu, Z. Ma, J. Vanderlei Martins, A. Misra, L.K. Norford, N. T. O'Neill, F.D. Qonitan, E.J. Quel, A. Salam, B. Schichtel, L. Segev, S.N. Tripathi, C. Wang, C. Yu, Q. Zhang, Y. Zhang, M. Brauer, M.D. Gibson, Y. Rudich, R.V. Martin, **Large Global Variations in Measured Airborne Metal Concentrations Driven by Anthropogenic Sources**, *Scientific Reports*, **10**, 21817 (2020).
14. M. Pardo, X. Qiu, R. Zimmermann, and Y. Rudich, **Particulate Matter Toxicity is Nrf2 and Mitochondria Dependent: the Roles of Metals and PAHs**, *Chemical Research in Toxicology*, **33**, 1110–1120 (2020).
15. X. Shi, X. Qiu, X. Jiang, Y. Rudich, T. Zhu, **Comprehensive Detection of Nitrated Aromatic Compounds in Fine Particulate Matter through Gas Chromatography and Tandem Mass Spectrometry Coupled with Electron Capture Negative Ionization Source**, *Journal of Hazardous Materials*, **407**, 124794, (2021).
16. A.P.S. Hettiyadura, V. Garcia, C. Li, C.P. West, J. Tomlin, Q. He, Y. Rudich, Laskin, A., **Chemical Composition and Molecular-specific Optical Properties of Atmospheric Brown Carbon Proxies**, *Environmental Science and Technology*, 2511–2521 (2021).
17. Q. He, S. Tomaz, C. Li, M. Zhu, D. Median, M. Riva, A. Laskin, S.S. Brown, C. George, X. Wang, and Y. Rudich, **Optical Properties of Secondary Organic Aerosol Produced by Nitrate Radical Oxidation of Biogenic Volatile Organic Compounds**, *Environmental Science and Technology*, **55**, 2878–2889 (2021).
18. X. Shi, X. Qiu, Q. Chen, S. Chen, M. Hu, Y. Rudich, T. Zhu, **Organic Iodine Compounds in Fine Particulate Matter from a Chinese Continental City: Insights on Secondary Formation in the Atmosphere**, *Environmental Science and Technology*, **55**, 1508-1514 (2021).
19. J. Chen, Z. Wu, J. Chen, N. Reicher, X. Fang, Y. Rudich, and M. Hu, **Size-Resolved Atmospheric Ice Nucleating Particles during East Asian Dust Events**, *Atmospheric Chemistry and Physics*, **21**, 3491–3506, (2021).
20. C. Li, E. Windwer, Z. Fang, D. Nissenbaum, Y. Rudich, **Correcting micro-aethalometer absorption measurement for brown carbon aerosol**, *Science of the Total Environment*, **777**, 146143 (2021).
21. M. Riva, J. Sun, V.F. McNeill, C. Ragon, S. Perrier, Y. Rudich, S.A. Nizkorodov, J. Chen, F. Caupin, T. Hoffmann, C. George, **Pressure Inside Nanometre-sized Particles Influences their Formation and Evolution**, *Environmental Science and Technology*, **55**, 7786–7793 (2021).
22. M. Pardo, C. Li, Z. Fang, S. Levin-Zaidman, N. Dezorella, H. Czech, P. Martens, U. Käfer, T. Gröger, C. P. Rüger, L. Friederici, R. Zimmermann, and Y. Rudich, **Toxicity of water- and organic-soluble wood tar fractions from biomass burning in lung epithelial cells**, *Chemical Research in Toxicology*, **34**, 1588–1603 (2021).
23. Z. Fang, C. Li, Q. He, H. Czech, T. Gröger, J. Zeng, H. Fang, S. Xiao, M. Pardo, E. Hartner, D. Meidan, X. Wang, R. Zimmermann, A. Laskin, Y. Rudich, **Secondary organic aerosols produced from photochemical oxidation of secondarily evaporated biomass burning organic gases: chemical composition, toxicity, optical properties, and climate effect**, *Environment International*, **157**, 106801 (2021).
24. A. Lai, J. Baumgartner, J. Schauer, Y. Rudich, and M. Pardo, **Cytotoxicity and chemical composition of women's personal PM2.5 exposures from rural China**, *Environmental Science: Atmospheres*, **1**, 359-371, (2021).

25. Y. Lima de Albuquerque, E. Berger, C. Li, M. Pardo, C. George, Y. Rudich and A. Géloën, **The toxic effect of water-soluble particulate pollutants from biomass burning on alveolar lung cells**, *Atmosphere*, **12**, 1023 (2021).
26. J. Zahradník, S. Marciano, M. Shemesh, E. Zoler, D. Harari, J. Chiaravalli, B. Meyer, Y. Rudich, C. Li, I. Marton, O. Dym, N. Elad, M.G. Lewis, H. Andersen, M. Gagne, R.A. Seder, D.C. Douek and G. Schreiber, **SARS-CoV-2 variant prediction and antiviral drug design are enabled by RBD in vitro evolution**, *Nature Microbiology*, **6**, 1188–1198, (2021).
27. J.M. Flores, G. Bourdin, A.B. Kostinski, O. Altaratz, G. Dagan, F. Lombard, N. Haëntjens, E.S. Boss, M.B. Sullivan, G. Gorsky, N. Lang-Yona, M. Trainic, S. Romac, C.R. Voolstra, Y. Rudich, A. Vard, Ilan Koren, **Diel cycle of sea spray aerosol concentration**, *Nature Communications* <https://doi.org/10.1038/s41467-021-25476-2>, **12**, Article Number: 5476, (2021).
28. X. Peng, D. Gat, A. Paytan and Y. Rudich, **The response of airborne mycobiome to dust storms in the Eastern Mediterranean**, *Journal of Fungi*, **7**, 802 (2021).
29. Q. He, Z. Fang, O. Shoshamin, S.S. Brown, Y. Rudich, **Scattering and Absorption Cross-sections of Atmospheric Gases in the Ultraviolet-Visible Wavelength Range (307 - 725 nm)**, *Atmospheric Chemistry and Physics* **21**, 1–14, (2021).
30. D. Gat, N. Reicher, S. Shechter, M. Alayof, M.D. Tarn, B.V. Wyld, R. Zimmermann, Y. Rudich, **Size-resolved community structure of bacteria and fungi transported by dust in the Middle East**, *Frontiers in Microbiology*, **12**, 744117, (2021).
31. K. Siemens, A. Morales, Q. He, C. Li, A. Hettiyadura, Y. Rudich, A. Laskin, **Molecular Analysis of Secondary Brown Carbon Produced from Photooxidation of Naphthalene**, *Environmental Science and Technology* **56**, 3340–3353 (2022).
32. Q. He, C. Li, K. Siemens, D. Median, APS Hettiyadura, A. Laskin, S.S. Brown, and Y. Rudich, **Optical Properties of Secondary Organic Aerosol Produced by Photooxidation of Naphthalene under NO_x Condition**, *Environmental Science and Technology* **56**, 4816-4827 (2022).
33. D. Meidan, S.S. Brown, V. Sinha, Y. Rudich, **Nocturnal atmospheric oxidative processes in the Indo-Gangetic Plain and their variation during the COVID-19 lockdowns**, *Geophysical Research Letters*, **49**, e2021GL097472 (2022).
34. C. Li, I. Marton, D. Harari, M. Shemesh, V. Kalchenko, M. Pardo, G. Schreiber, Y. Rudich, **Gelatin stabilizes nebulized proteins in pulmonary drug delivery against COVID-19**, *ACS Biomaterials Science & Engineering*, **8**, 2553-2563 (2022).
35. N. Lang-Yona, J.M. Flore, R. Haviv, A. Alberti, J. Poulain, C. Belser, M. Trainic, D. Gat, H-J. Ruscheweyh, P. Wincke, S. Sunagawa, Y. Rudich, I. Koren, A. Vardi, **Terrestrial and marine influence on atmospheric bacterial diversity over the north Atlantic and Pacific Oceans**, *Communications Earth and Environment*, **3**, 121 (2022).
36. C. Li, Z. Fang, H. Czech, E. Schneider, C.P. Rüger, M. Pardo, R. Zimmermann, J. Chen, A. Laskin, Y. Rudich, **pH modifies the oxidative potential and peroxide content of biomass burning HULIS under dark aging**, *Science of the Total Environment*, **834**, 155365 (2022)
37. Z. Fang, W. Deng, X. Wang, Y. Rudich, Q. He, Y. Zhang, W. Hu, W. Song, M. Zhu, S. Lowther, Z. Wang, X. Fu, Q. Hu, X. Bi, and C. George, **Evolution of Light Absorption Properties during Photochemical Aging of Straw Open Burning Aerosols**, *Science of the Total Environment*, in press (2022).
38. E. Hartner, A. Paul, U. Käfer, H. Czech, T. Hohaus, T. Gröger, M. Sklorz, G. Jakobi, J. Orasche, S. Jeong, R. Brejcha, T. Ziehm, Z.-Hui Zhang, J. Schnelle-Kreis, T. Adam, Y. Rudich, A. Kiendler-Scharr, R. Zimmermann, **Investigation of the complementarity and informative value of different electron**

- ionization mass spectrometric techniques for the determination of secondary organic aerosols**, *ACS Earth and Space Chemistry*, **6**, 1358–1374 (2022).
39. H. Kang, X. Shang, M. Abdumutallip, Y. Chen, L. Li, X. Wang, C. Li, H. Ouyang, X. Tang, L. Wang, Y. Rudich, J. Chen, **Accurate observation of black and brown carbon in atmospheric fine particles via a versatile aerosol concentration enrichment system (VACES)**, *Science of the Total Environment*, **837**, 155817, (2022).
 40. M. Pardo.....Y. Rudich, **Genome-wide Effects Induced by Exposure to Naphthalene and β -Pinene-derived Secondary Organic Aerosol in BEAS-2B Cells**, *Environment International*, 166, 107366 (2022).
 41. S. Hartmann, M. Ling, L.S.A. Dreyer, A. Zipori, K. Finster, S. Grawe, L.Z. Jensen, S. Borck, N. Reicher, T. Drace, D. Niedermeier, N.C. Jones, S.V. Hoffmann, H. Wex, Y. Rudich, T. Boesen, T. Šantl-Temkivc, **The Relationship Between Structure and Function in Bacterial Ice Nucleation Protein**, *Frontiers in Microbiology*, **3**, Article 872306, (2022).
 42. J.M. Tomlin, J. Weis, D.P. Veghte, S. China, M. Fraund, Q. He, N. Reicher, C. Li, K.A. Jankowski, F.A. Rivera-Adorno, A.C. Morales, Y. Rudich, R.C. Moffet, M.K. Gilles, A. Laskin, **Chemical Composition and Morphological Analysis of Atmospheric Particles from an Intensive Bonfire Burning Festival**, *Environmental Science: Atmospheres*, DOI: 10.1039/d2ea00037g, (2022).
 43. J. Forbes, A. Bissoyi, L. Eickhoff, N. Reicher, T. Hansen, C. Bon, V.K. Walker, T. Koop, Y. Rudich, I. Braslavsky, P.L. Davies, **Water-organizing motif continuity is critical for potent ice nucleation protein activity**, *Nature Communications*, **13**, 5019 (2022).
 44. C. Li, M.V. Misovich, M. Pardo, Z. Fang, A. Laskin, J. Chen, Y. Rudich, **Secondary Organic Aerosol Formation from Atmospheric Reactions of Anisole and Associated Health Effects**, *Chemosphere*, (in press), (2022).
 45. L. Eickhoff, M. Bayer-Giraldi, N. Reicher, Y. Rudich, T. Koop, **Ice nucleating properties of the sea ice diatom *Fragilariopsis cylindrus* and its exudates**, *Biogeosciences Discussions*
 46. C.C. Womack, S.S. Brown, S.J. Ciciora, R.-S. Gao, R.J. McLaughlin, M.A. Robinson, Y. Rudich, and R.A. Washenfelder, **A lightweight broadband cavity enhanced spectrometer for NO₂ measurement on unmanned aerial vehicles**, *Atmospheric Measurements Techniques Discussions*.
 47. M. Chasnitsky, S.R. Cohen, Y. Rudich, and I. Braslavsky, **Atomic force microscopy imaging of ice crystal surfaces formed in aqueous solutions containing ice-binding proteins**, *Journal of Crystal Growth*, **601**, 126961 (2023).
 48. B.A. Erkorkmaz, D. Gat, and Y. Rudich, **Understanding the aerial transport of bacteria by dust-plumes in the Eastern Mediterranean using rRNA and rRNA-gene sequencing**, *Communications Earth and Environment*, (in press).
 49. G. Zittis, M. Almazroui, P. Alpert, P. Ciais, W. Cramer, Y. Dahda, M. Fnais, P. Hadjinicolaou, F. Howari, A. Jrrar, D. Kaskaoutis, M. Kulmala, N. Mihalopoulos, X. Lin, O. Pauluis, Y. Rudich, G. Stenichikov13, E. Xoplaki, A. Zaki, and J. Lelieveld, **Climate change and weather extremes in the Eastern Mediterranean and the Middle East**, *Reviews of Geophysics*, **60**, e2021RG000762, 2022.
 50. M. Neira, K. Erguler, H. Ahmady-Birgani, N. AL-Hmoud, R. Fears, C. Gogos, N. Hobbhahn, M. Koliou, L. Kostrikis, J. Lelieveld1, A. Majeed, S. Paz, Y. Rudich, A. Saad-Hussein, M. Shaheen, A. Tobias, G. Christophides, **The Effects of Climate Change on Human Health in the Eastern Mediterranean and Middle East: Literature Review, Research and Policy Suggestions**, *Environmental Research*, **216**, 114537, (2023).