

DEMETRIOS PAGONIS

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Summary: Dr. Pagonis researches the atmospheric chemistry and air quality of outdoor and indoor environments, with particular focus on secondary organic aerosol chemistry

Education

- 2018 Ph.D., Department of Chemistry, University of Colorado, Boulder. Thesis supervised by Prof. Ziemann: Influence of multiphase processes on the chemistry and measurement of organic compounds in indoor and outdoor environments
- 2013 B.S., *magna cum laude* with honors, Davidson College, Davidson, NC

Professional Appointments

- 2021-Present Assistant Professor, Dept. of Chemistry and Biochemistry, Weber State University, Ogden, Utah
- 2019-2021 Postdoctoral Associate, Jimenez group. Dept. of Chemistry and Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder

Teaching

- 2021-2022 Quantitative Analysis, Weber State University
- 2021 General Chemistry, Weber State University
- 2020 Guest lecturer, Atmospheric Chemistry, University of Denver
- 2019 Guest lecturer, Advanced Atmospheric Chemistry, CU Boulder
- 2019 Guest lecturer, Mass Spectrometry and Chromatography, CU Boulder
- 2014, 2016 Teaching assistant, Instrumental Analysis Laboratory, CU Boulder
- 2013 Teaching assistant, General Chemistry 1 with laboratory, CU Boulder

Publications

20. Bourgeois, I., Peischl, J., Neuman, J. A., Brown, S. S., Allen, H. M., Campuzano-Jost, P., Coggon, M. M., DiGangi, J. P., Diskin, G. S., Gilman, J. B., Gkatzelis, G. I., Guo, H., Halliday, H., Hanisco, T. F., Holmes, C. D., Huey, L. G., Jimenez, J. L., Lamplugh, A. D., Lee, Y. R., Lindaas, J., Moore, R. H., Nowak, J. B., **Pagonis, D.**, Rickly, P. S., Robinson, M. A., Rollins, A. W., Selimovic, V., St. Clair, J. M., Tanner, D., Vasquez, K. T., Veres, P. R., Warneke, C., Wennberg, P. O., Washenfelder, R. A., Wiggins, E. B., Womack, C. C., Xu, L., Zarzana, K. J., and Ryerson, T. B.: Comparison of airborne measurements of NO, NO₂, HONO, NO_y and CO during FIREX-AQ, *Atmospheric Measurement Techniques Discussions* [preprint], 10.5194/amt-2021-432, 2022
19. Price, D. J.; Day, D. A.; **Pagonis, D.**; Stark, H.; Handschy, A. V.; Algrim, L. B.; Miller, S. L.; de Gouw, J. A.; Ziemann, P. J.; and Jimenez, J. L. Sources of Gas-Phase Species in an Art Museum from Comprehensive Real-Time Measurements. *ACS Earth and Space Chemistry*, 5, 2252-2267, 2021

18. Decker, Z.; Wang, S.; Bourgeois, I.; Campuzano-Jost, P.; Coggon, M.; DiGangi, J.; Diskin, G.; Flocke, F.; Franchin, A.; Fredrickson, C.; Gkatzelis, G.; Hall, S.; Halliday, H.; Hayden, K.; Holmes, C. D.; Huey, L.; Jimenez, J.; Lee, Y.; Lindaas, J.; Middlebrook, A.; Montzka, D.; Neuman, J. A.; Nowak, J.; **Pagonis, D.**; Palm, B.; Peischl, J.; Piel, F.; Rickly, P.; Robinson, M.; Rollins, A.; Ryerson, T.; Sekimoto, K.; Thornton, J.; Tyndall, G.; Ullmann, K.; Veres, P.; Warneke, C.; Washenfelder, R.; Weinheimer, A.; Wisthaler, A.; Womack, C.; and Brown, S. A novel analysis to quantify plume crosswind heterogeneity applied to biomass burning smoke. *Environmental Science and Technology*, 55, 15646-15657, 2021
17. Finewax, Z., **Pagonis, D.**, Claflin, M. S., Handschy, A. V., Brown, W., Jenks, O., Nault, B. A., Day, D. A., Lerner, B. M., Jimenez, J. L., Ziemann, P. J., and de Gouw, J. A. Quantification and source characterization of volatile organic compounds from exercising and application of chlorine-based cleaning products in a university athletic center. *Indoor Air*, 5, 1323-1339, 2020
16. **Pagonis, D.**, Campuzano-Jost, P., Guo, H., Day, D. A., Schueneman, M. K., Brown, W. L., Nault, B. A., Stark, H., Siemens, K., Laskin, A., Piel, F., Tomsche, L., Wisthaler, A., Coggon, M. M., Gkatzelis, G. I., Halliday, H. S., Krechmer, J. E., Moore, R. H., Thomson, D. S., Warneke, C., Wiggins, E. B., and Jimenez, J. L. Airborne extractive electrospray ionization mass spectrometry measurements of the chemical composition of organic aerosol. *Atmospheric Measurement Techniques*, 14, 1545-1559, 2020
15. Claflin, M., **Pagonis, D.**, Finewax, Z., Handschy, A., Day, D., Brown, W., Jayne, J., Worsnop, D., Jimenez, J. L., Ziemann, P. J., de Gouw, J., and Lerner, B. Measurements of indoor air using an *in-situ* gas chromatograph with automatic detector switching between Vocus PTR-TOF-MS and EI-TOF-MS. *Atmospheric Measurement Techniques*, In Press. doi:10.5194/amt-2020-271, 2020
14. Nault, B. A., Campuzano-Jost, P., Day, D. A., Guo, H., Jo, D. S., Handschy, A. V., **Pagonis, D.**, Schroder, J. C., Schueneman, M. K., Cubison, M. J., Dibb, J. E., Hodzic, A., Hu, W., Palm, B. B., and Jimenez, J. L. Interferences on aerosol acidity quantification due to gas-phase ammonia uptake onto acidic sulfate filter samples. *Atmospheric Measurement Techniques*, 13, 6193–6213. 2020
13. Brown, W. L., Day, D. A., Stark, H., **Pagonis, D.**, Krechmer, J. E., Liu, X., Price, D. J., Katz, E. F., DeCarlo, P., Masoud, C. G., Wang, D. S., Hildebrandt Ruiz, L., Arata, C., Lunderberg, D., Goldstein, A. H., Farmer, D. K., Vance, M. E., and Jimenez, J. L. Real-time organic aerosol chemical speciation in the indoor environment using extractive electrospray ionization mass spectrometry. *Indoor Air*. 31, 141-155, 2020
12. Algrim, L., **Pagonis, D.**, de Gouw, J. A., Jimenez, J. L., Ziemann, P. J. Measurements and modeling of absorptive partitioning of volatile organic compounds to painted surfaces. *Indoor Air*, 30, 745-756, 2020
11. Price, D., Day, D. A., **Pagonis, D.**, Stark, H., Algrim, L. B., Handschy, A. V., Liu, S., Krechmer, J. E., Miller, S. L., Hunter, J. F., de Gouw, J. A., Ziemann, P. J., and Jimenez, J. L. Budgets of organic carbon composition and oxidation in indoor air. *Environmental Science and Technology*, 53, 13053-13063, 2019

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10. **Pagonis, D.**, Algrim, L. B., Price, D. J., Day, D. A., Handschy, A. V., Stark, H., Miller, S. L., de Gouw, J. A., Jimenez, J. L., and Ziemann, P. J. Autoxidation of limonene in a university art museum. *Environmental Science and Technology Letters*, 6, 520-524, 2019
9. Deming, B., **Pagonis, D.**, Liu, X., Day, D., Talukdar, R., Krechmer, J., de Gouw, J. A., Jimenez, J. L., and Ziemann, P. J. Measurements of delays of gas-phase compounds in a wide variety of tubing materials due to gas-wall interactions. *Atmospheric Measurement Techniques*, 12, 3453-3461, 2019
8. Liu, X., Deming, B., **Pagonis, D.**, Day, D., Palm, B., Talukdar, R., Roberts, J., Veres, P., Krechmer, J., Thornton, J., de Gouw, J., Ziemann, P., and Jimenez, J. L. Effects of gas-wall interactions on measurements of semivolatile compounds and small polar molecules. *Atmospheric Measurement Techniques*, 12, 3173-3149, 2019
7. **Pagonis, D.**, Sekimoto, K., and de Gouw, J. A library of proton-transfer reactions of H_3O^+ ions used for trace gas detection. *Journal of the American Society for Mass Spectrometry*, 30, 1330-1335, 2019
6. **Pagonis, D.**, Price, D. J., Algrim, L. B., Day, D. A., Handschy, A. V., Stark, H., Miller, S. L., de Gouw, J., Jimenez, J. L., and Ziemann, P. J. Time-resolved measurements of indoor chemical emissions, deposition, and reactions in a university art museum. *Environmental Science and Technology*, 53, 4794-4802, 2019
5. **Pagonis, D.** and Ziemann, P. Chemistry of hydroperoxycarbonyls in secondary organic aerosol. *Aerosol Science and Technology*, 52, 1178-1193, 2018
4. **Pagonis, D.**, Krechmer, J., de Gouw, J., Jimenez, J., Ziemann, P. Effects of gas-wall partitioning in Teflon tubing and instrumentation on time-resolved measurements of gas-phase organic compounds. *Atmospheric Measurement Techniques*, 10, 4687-4696, 2018
3. Suda Petters, S., **Pagonis, D.**, Clafflin, M., Levin, E., Petters, M., Ziemann, P., Kreidenweis, S. Hygroscopicity of organic compounds as a function of carbon chain length and carboxyl, hydroperoxyl, and carbonyl functional groups. *Journal of Physical Chemistry A*, 121, 5164-5174, 2017
2. Krechmer, J., **Pagonis, D.**, Ziemann, P., and Jimenez, J. Quantification of gas-wall partitioning in Teflon environmental chambers using rapid bursts of low-volatility oxidized species generated in-situ. *Environmental Science and Technology*, 50, 5757-5765, 2016
1. Hangarter, C., Liu, Y., **Pagonis, D.**, Bertocci, U., and Moffat, T. Electrodeposition of Ternary Pt_{100-x-y}CoxNiy Alloys. *Journal of the Electrochemical Society*, 161, D31-D43, 2014

Invited Presentations

5. Pagonis, D. Constraints on Biomass Burning Organic Aerosol Volatility and the Impacts of Gas-Particle Partitioning. **2021** Sixteenth Atmospheric Chemistry Colloquium for Emerging Senior Scientists ACCESS XVI
4. Pagonis, D., Algrim, L., Morris, M., Ziola, A., Price, D., Day, D., Handschy, A., de Gouw, J., Ziemann, P., and Jimenez, J. L. Reversible Partitioning in the Indoor Environment. **2021** Sloan Chemistry of Indoor Environments Meeting

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3. Pagonis, D., Campuzano-Jost, P., Guo, H., Day, D. A., Schueneman, M. K., Nault, B. A., Brown, W., and Jimenez, J. L. Synergistic EESI-MS and AMS Measurements at FIREX-AQ. **2021** Aerodyne Aerosol Mass Spectrometers Users' Meeting, Online
2. Pagonis, D., Campuzano-Jost, P., Guo, H., Day, D., Schueneman, M., Brown, W., Nault, B., DiGangi, J., Diskin, G., Fenn, M., Hair, J., Halliday, H., Katich, J., Mikoviny, T., Nowak, J., Perring, A., Piel, F., Saide, P., Schwarz, J., Shingler, T., Thapa, L., Tomsche, L., Wisthaler, A., and Jimenez, J. L. Chemical Aging of Biomass Burning Organic Aerosol: Insight from Airborne Extractive Electrospray Mass Spectrometry (EESI) Measurements. September **2020** NCAR ACOM Seminar
1. Pagonis, D., Claflin, M., Lerner, B., Ziemann, P. J., Jimenez, J. L. and de Gouw, J. Time-resolved measurements of volatile organic compounds indoors using a Vocus time-of-flight proton-transfer-reaction mass spectrometer. **2019** International Society of Indoor Air Quality and Climate Webinar

Oral Presentations

14. Pagonis, D., Selimovic, V., Campuzano-Jost, P., Guo, H., Schueneman, M., Day, D., Nault, B., Campos, T., DiGangi, J., Diskin, G., Farmer, D., Gargulinski, E., Garofalo, L., Hair, J., Halliday, H., Herndon, S., Holmes, C., Katich, J., Kreidenweis, S., Levin, E., Nowak, J., Perring, A., Pothier, M., Saide, P., Schwarz, J., Shingler, T., Soja, A., Thapa, L., Wiggins, E., Yacovitch, T., Yokelson, R., and Jimenez, J. L. Biomass Burning Organic Aerosol Volatility, Emission Factors, and Aging. **2021** American Geophysical Union Fall Meeting, Online
13. Pagonis, D., Campuzano-Jost, P., Guo, H., Day, D. A., Schueneman, M. K., Nault, B. A., Brown, W., Coggon, M., DiGangi, J., Diskin, G., Fenn, M., Gkatzelis, G., Hair, J., Halliday, H., Holmes, C., Katich, J., Laskin, A., Nowak, J., Perring, A., Saide, P., Schwarz, J., Sekimoto, K., Siemens, K., Thapa, L., Warneke, C., Wolfe, G., and Jimenez, J. L. Chemical Aging of Biomass Burning Organic Aerosol: Insight from Fast Near-Molecular Measurements. **2020** American Geophysical Union Fall Meeting, Online
12. Pagonis, D., Campuzano-Jost, P., Guo, H., Day, D. A., Schueneman, M. K., Brown, W., Nault, B. A., Stark, H., Siemens, K., Laskin, A., Piel, F., Tomsche, L., Mikoviny, T., Wisthaler, A., Coggon, M., DiGangi, J., Diskin, G., Gkatzelis, G., Halliday, H., Katich, J., Krechmer, J., Nowak, J., Perring, A., Schwarz, J., Thomson, D., Warneke, C., and Jimenez, J. L. Airborne Extractive Electrospray Mass Spectrometry (EESI) Measurements of the Chemical Composition of Biomass Burning Organic Aerosol. **2020** American Association of Aerosol Research Annual Conference, Online
11. Pagonis, D., Krechmer, J. E., Ziemann, P. J., de Gouw, J., and Jimenez, J. L. Deconvolution of Partitioning Delays from Time-Resolved Measurements. **2020** Aerodyne ToF-CIMS Users' Meeting, Online
10. Pagonis, D., Campuzano-Jost, P., Guo, H., Day, D. A., Brown, W., Schueneman, M., Nault, B., Siemens, K., Laskin, A., Piel, F., Mikoviny, T., Tomsche, L., Wisthaler, A., DiGangi, J., Diskin, G., Halliday, H., Hildebrandt Ruiz, L., Masoud, C., Nowak, J., Schwarz, J., Warneke, C., and Jimenez, J. L. Airborne EESI-TOF Measurements of the Chemical

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- Composition of Biomass Burning Organic Aerosol. **2020** Aerodyne ToF-CIMS Users' Meeting, Online
9. Pagonis, D., Krechmer, J. E., Ziemann, P. J., de Gouw, J., and Jimenez, J. L. Deconvolution of Partitioning Delays from Time-Resolved Measurements. **2020** Front Range TOF-CIMS Users' Meeting, Online
 8. Pagonis, D., Campuzano-Jost, P., Guo, H., Day, D. A., Brown, W., Schueneman, M., Nault, B., Diskin, G., Schwarz, J., Warneke, C., Wisthaler, A., and Jimenez, J. L. Airborne EESI-TOF. **2020** Front Range TOF-CIMS Users' Meeting, Online
 7. Pagonis, D., Price, D. J., Algrim, L. B., Day, D. A., Handschy, A. V., Stark, H., Miller, S. L., de Gouw, J., Jimenez, J. L., and Ziemann, P. J. Air quality measurements and management strategies for museums. **2019** Mountain Plains Museum Association Conference, Albuquerque, NM
 6. Pagonis, D., Krechmer, J. E., Ziemann, P. J., de Gouw, J., and Jimenez, J. L. Correcting for partitioning delays: deconvolution vs fast zeroing. **2019** Aerodyne ToF-CIMS Users' Meeting, Boulder, CO
 5. Pagonis, D., Price, D., Algrim, L., Day, D., Handschy, A., Miller, S., de Gouw, J., Jimenez, J., and Ziemann, P. Time-resolved measurements of indoor chemistry, emission rates, and deposition velocities in a university art museum. **2018** International Society of Indoor Air Quality and Climate Indoor Air Conference, Philadelphia, PA
 4. Pagonis, D., Deming, B., Liu, X., Talukadar, R., Roberts, J., Krechmer, J., de Gouw, J., Jimenez, J., and Ziemann, P. Effects of gas-wall partitioning in tubing and instrumentation on gas-phase measurements. **2018** Aerodyne ToF-CIMS Users' Meeting, Seattle, WA
 3. Pagonis, D., Deming, B., Liu, X., Talukadar, R., Roberts, J., Krechmer, J., de Gouw, J., Jimenez, J., and Ziemann, P. Tubing delays – teflon and other materials. **2018** Front Range Chemical Ionization Mass Spectrometer Users' Meeting, Boulder, CO
 2. Pagonis, D., Krechmer, J., de Gouw, J., Jimenez, J., and Ziemann, P. What about the tubing? **2017** Front Range Chemical Ionization Mass Spectrometer Users' Meeting, Boulder, CO
 1. Pagonis, D., and Ziemann, P. Reaction pathways, kinetics, and equilibria of multifunctional hydroperoxides in secondary organic aerosol. **2016** American Association of Aerosol Research Annual Conference, Portland, OR

Funding

3. *COVID-19 Mitigation at the Val A. Browning Center Through Direct Measurement of Ventilation*, Weber State University Research, Scholarship, and Professional Growth Committee Research Grant, (PI) \$2,976, 10/2021–12/2021
2. *Constraining Organic Aerosol Evaporation and Aging for Biomass Burning, Pollution, and Biogenic Sources Using Airborne Data*, NASA Earth Science NNH20ZDA001N-ACCDAM (Co-I, PI: J.L. Jimenez) 3.3 mo/yr, \$690,500, 4/2021–4/2024
1. *Airborne Investigation of Fresh and Aged Aerosol Emissions from North American Fires on the NASA DC8 with HR-ToF-AMS and EESI-ToF-MS — Funded Extension*, NASA Earth Science Post-COVID-19 Recovery Program (Postdoctoral Associate, PI: J.L. Jimenez) 5 mo/yr, \$89,000, 3/2021–4/2022

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Outreach

- 2020-2022 Advising on best ventilation practices for mitigating SARS-COV-2 spread and deploying low-cost carbon dioxide sensors for use in COVID-19 risk assessment
- 2019 Advising museums in the mountain west on best practices for managing indoor air quality, especially mitigating wildfire smoke exposure
- 2019-2021 Volunteer at the National Ocean Science Bowl regional Trout Bowl tournament
- 2018 Talk at the CU Undergraduate Chemistry Club, “Indoor air quality”
- 2018 Public talk at Nerd Night Boulder, “Chemistry of the indoor environment”
- 2018 Public talk at the CU Boulder Women in Science & Engineering SciComm Symposium, “Chemistry of the indoor environment”
- 2017 Hosted and mentored a high school student for a CareerLaunch Internship summer project using FTIR to quantify components of secondary organic aerosol
- 2016 Public talk at CIRES IGNITE, Boulder, CO, “Laboratory studies of secondary organic aerosol chemistry”
- 2014-2016 Global Ozone Project, discussed climate change, air pollution and careers in science with 8th grade classes in Colorado

Professional Service

- 2020 Session chair, 2020 American Association of Aerosol Research Annual Meeting
- 2020-2021 Organizer and host, Front Range TOF-CIMS Users’ Meeting
- 2017-Present Reviewer:
- ACS Earth and Space Chemistry*
 - Aerosol Science and Technology*
 - Atmospheric Chemistry and Physics*
 - Atmospheric Environment*
 - Atmospheric Measurement Techniques*
 - Environmental Science and Technology*
 - Environmental Science Processes and Impacts*
 - Journal of Geophysical Research: Atmospheres*
 - Science Advances*

Awards

- 2021 CIRES Outstanding Performance Award in Science
- 2021 CIRES Bronze Medal
- 2018 Best Poster Presentation Award, Sloan Chemistry of Indoor Environments Science Meeting, Boulder, CO
- 2017 Outstanding Student Paper Award, American Geophysical Union Fall Meeting, New Orleans, LA
- 2012 Phi Beta Kappa, Davidson College

Field Research Experience

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- 2019 FIREX-AQ – Fire Influence on Regional to Global Environments and Air Quality. Airborne measurements onboard the NASA DC-8 aircraft, Boise, ID and Salina, KS
- 2018 ATHLETIC – Athletic Center Study of Indoor Chemistry. Indoor site at the Dal Ward Athletic Center, Boulder, CO
- 2017 ARTISTIC – Art Museum Study of Indoor Chemistry. Indoor site at the University of Colorado Art Museum, Boulder, CO