CURRICULUM VITAE

Bryan R. Bzdek

Proleptic Associate Professor School of Chemistry, University of Bristol Cantock's Close, Bristol, BS8 1TS, United Kingdom Telephone: +44 117 455 6412 Citizenship: US citizen Languages: English and French (DELF B2)

Appointments:

08/2023 – present	Proleptic Associate Professor
03/2022 - present	Director, Bristol Aerosols and Colloids Instrument Centre
08/2021 - 08/2023	Proleptic Senior Lecturer
09/2020 - 08/2021	Proleptic Lecturer
09/2020 - 09/2021	Honorary Appointment, University Hospitals Bristol and Weston NHS
	Foundation Trust
09/2017 - 09/2022	Natural Environment Research Council Independent Research Fellow,
	University of Bristol, UK
08/2014 - 08/2017	Postdoctoral Research Associate, School of Chemistry, University of Bristol,
	UK (Adviser: Jonathan P. Reid)
09/2011 - 08/2014	EPA STAR Graduate Research Fellow, University of Delaware
06/2011 - 09/2011	ACS Division of Analytical Chemistry Summer Graduate Fellow, sponsored
	by the Society for Analytical Chemists of Pittsburgh, University of Delaware
08/2008 - 06/2011	Center for Critical Zone Research Graduate Fellow, University of Delaware

Education:

Ph.D., Analytical Chemistry (August 2014)
University of Delaware, Newark, Delaware
Cumulative GPA: 4.00/4.00
Dissertation Title: Chemical Mechanisms Governing Atmospheric New Particle Formation
Adviser: Murray V. Johnston

B.S., summa cum laude with departmental honors (May 2008)
Bucknell University, Lewisburg, Pennsylvania
Major: Chemistry; Minors: Music (Piano), French
Cumulative GPA: 3.95/4.00
Honors Thesis Title: Comparison of the Si-O Stretching Region of Unaltered and Reduced Uley Nontronites by Polarized ATR-FTIR
Adviser: Molly M. McGuire

Honors and Awards:

- 2023 Marlow Prize from the Royal Society of Chemistry for pioneering contributions to aerosol physical chemistry, including the surface composition of microscopic droplets, new particle formation in the atmosphere, and the physicochemical properties of respiratory aerosols
- 2023 John Smith Airway Paper of the Year Award from the Association of Anaesthetists of Great Britain and Ireland
 - for Shrimpton et al., Anaesthesia, 2022, 77, 22-27
- 2022 Philip Leverhulme Prize from the Leverhulme Trust for researchers at an early stage of their careers whose work has had international impact and whose future research career is exceptionally promising
- 2022 Juan de la Mora Prize from the American Association for Aerosol Research winner receives a high-resolution half-mini differential mobility analyzer
- 2022 John Smith Airway Paper of the Year Award from the Association of Anaesthetists of Great Britain and Ireland
 - for Brown et al., Anaesthesia, 2021, 76, 174-181

- 2022 "We carry out research and innovation" Award, North Bristol NHS Trust Annual Staff Award
- 2022 Anaesthesia Article of the Year 2021 for Shrimpton et al., Anaesthesia, **2021**, 76, 1577-1584 (ranked 4th) and Shrimpton et al., Anaesthesia, **2022**, 77, 22-27 (ranked 5th)
- 2017 Sheldon K. Friedlander Award from the American Association for Aerosol Research for an outstanding dissertation by an individual who has earned a doctoral degree
- 2013 47th Annual Glenn S. Skinner Memorial Award for distinction in scholarship, research, and service by a graduate student in the Department of Chemistry, University of Delaware
- 2013 First Prize, 40th Annual Joel L. Silver Award Symposium for excellent achievement in research and highly professional presentation of results in the Department of Chemistry, University of Delaware
- 2010 Department of Energy Office of Science Graduate Fellowship Finalist
- 2010 NSF Graduate Research Fellowship Honorable Mention
- 2008 Phi Beta Kappa

Professional Affiliations: American Association for Aerosol Research, American Chemical Society, American Society for Mass Spectrometry, Phi Beta Kappa, Royal Society of Chemistry (Affiliate), UK and Ireland Aerosol Society

RESEARCH

Academic Journal Publications (* = corresponding author):

- A. Bain, L. Lalemi, N. Croll Dawes, R. E. H. Miles, A. M. Prophet, K. R. Wilson, and <u>B. R.</u> <u>Bzdek</u>*, "Surfactant Partitioning Dynamics in Freshly Generated Aerosol Droplets," *Journal of the American Chemical Society*, **2024**, doi: 10.1021/jacs.4c03041.
- J. Tian, H. E. Symons, N. A. Watson, J. Archer, L. P. McCarthy, J. Harrison, M. Kittle, W. J. Browne, B. Saccente-Kennedy, R. Epstein, C. M. Orton, J. D. Calder, P. L. Shah, D. Costello, J. P. Reid, and <u>B. R. Bzdek</u>*, "Comparisons of Aerosol Generation Across Different Musical Instruments and Loudness," *Journal of Aerosol Science*, **2024**, *177*, 106318.
- A. Szczepanska, J. Harrison, B. Saccente-Kennedy, J. Archer, N. A. Watson, C. M. Orton, W. J. Browne, R. Epstein, J. D. Calder, P. L. Shah, D. Costello, <u>B. R. Bzdek</u>*, and J. P. Reid*, "The Filtration Efficiency of Surgical Masks for Expiratory Aerosol and Droplets Generated by Vocal Exercises," *Aerosol Science and Technology*, **2024**, *58*, 39-53.
- A. J. Shrimpton, V. Brown, J. Vassallo, J. P. Nolan, J. Soar, F. Hamilton, T. M. Cook, <u>B. R.</u> <u>Bzdek</u>, J. P. Reid, C. H. Makepeace, J. Deutsch, R. Ascione, J. M. Brown, J. R. Benger, and A. E. Pickering, "A Quantitative Evaluation of Aerosol Generation During Cardiopulmonary Resuscitation," *Anaesthesia*, **2024**, *79*, 156-167.
- A. Bain, K. Ghosh, N. L. Prisle*, and <u>B. R. Bzdek</u>*, "Surface-Area-To-Volume Ratio Determines Surface Tensions in Microscopic, Surfactant-Containing Droplets," ACS Central Science, 2023, 9, 2076–2083. (First Reactions Highlight)
- 6. A. Bain, M. N. Chan, <u>B. R. Bzdek</u>*, "Physical Properties of Short Chain Aqueous Organosulfate Aerosol," *Environmental Science: Atmospheres*, **2023**, *3*, 1365-1373.
- V. Hamilton, S. Sheikh, A. Szczepanska, N. Maskell, F. Hamilton, J. P. Reid, <u>B. R. Bzdek</u>*, J. Murray*, "Diathermy and Bone Sawing Are High Aerosol Yield Procedures: Observations From a Sterile Laminar Flow Environment," *Bone & Joint Research*, 2023, *12*, 636-643.
- B. Saccente-Kennedy, A. Szczepanska, J. Harrison, J. Archer, N. A. Watson, C. M. Orton, D. Costello, J. D. Calder, P. L. Shah, J. P. Reid, <u>B. R. Bzdek</u>*, and R. Epstein*, "Mitigation of Respirable Aerosol Particles from Speech and Language Therapy Exercises," *Journal of Voice*, 2023, doi: 10.1016/j.jvoice.2023.04.001.

- J. Harrison, B. Saccente-Kennedy, C. M. Orton, L. P. McCarthy, J. Archer, H. E. Symons, A. Szczepanska, N. A. Watson, W. J. Browne, B. Moseley, K. E. J. Philip, J. H. Hull, J. D. Calder, D. Costello, P. L. Shah, R. Epstein, J. P. Reid, and <u>B. R. Bzdek</u>*, "Emission Rates, Size Distributions, and Generation Mechanism of Oral Respiratory Droplets," *Aerosol Science and Technology*, **2023**, *57*, 187-199.
- G. H. Downing, Y. Hardalupas, J. Archer, H. Symons, U. B. Baloglu, D. Schien, <u>B. R. Bzdek</u>, and J. P. Reid, "Computational and Experimental Study of Aerosol Dispersion in a Ventilated Room," *Aerosol Science and Technology*, **2023**, *57*, 50-62.
- B. Saccente-Kennedy, J. Archer, H. E. Symons, N. A. Watson, C. M. Orton, W. J. Browne, J. Harrison, J. D. Calder, P. L. Shah, D. Costello, J. P. Reid, <u>B. R. Bzdek</u>*, and R. Epstein*, "Quantification of Respirable Aerosol Particles from Speech and Language Therapy Exercises," *Journal of Voice*, **2022**, doi: 10.1016/j.jvoice.2022.07.006.
- T. Dudding, S. Sheikh, F. Gregson, J. Haworth, S. Haworth, B. G. Main, A. Shrimpton, G. Hamilton, AERATOR group, A. Ireland, N. Maskell, J.P. Reid, <u>B. R. Bzdek</u>*, and M. Gormley*, "A Clinical Observational Analysis of Aerosol Emissions from Dental Procedures," *PLOS One*, **2022**, *17*, e0265076.
- C. M. Orton, H. E. Symons, B. Moseley, J. Archer, N. A. Watson, K. E. J. Philip, S. Sheikh, B. Saccente-Kennedy, D. Costello, W. J. Browne, J. D. Calder, <u>B. R. Bzdek</u>, J. H. Hull, J. P. Reid, and P. L. Shah, "Exercise, Speaking and Breathing at Rest: a Comparison of Aerosol Mass Emission," *Communications Medicine*, **2022**, *2*, 44, doi: 10.1038/s43856-022-00103-w.
- J. Archer, L. P. McCarthy, H. E. Symons, N. A. Watson, C. M. Orton, W. J. Browne, J. Harrison, B. Moseley, K. E. J. Philip, J. D. Calder, P. L. Shah, <u>B. R. Bzdek</u>, D. Costello, and J. P. Reid, "Comparing Aerosol Number and Mass Exhalation Rates from Children and Adults During Breathing, Speaking and Singing," *Interface Focus*, **2022**, *12*, 20210078.
- 15. F. K. A. Gregson, S. Sheikh, J. Archer, H. E. Symons, J. S. Walker, A. E. Haddrell, C. M. Orton, F. W. Hamilton, J. M. Brown, <u>B. R. Bzdek*</u>, and J. P. Reid*, "Analytical Challenges when Sampling and Characterising Exhaled Aerosol," *Aerosol Science and Technology*, **2022**, 56, 160-175.
- A. J. Shrimpton, J. M. Brown, F. K. A. Gregson, T. M. Cook, D. A. Scott, F. McGain, R. S. Humphries, R. S. Dhillon, J. P. Reid, F. Hamilton, <u>B. R. Bzdek</u>, and A. E. Pickering, "Quantitative Evaluation of Aerosol Generation During Manual Facemask Ventilation," *Anaesthesia*, **2022**, *77*, 22-27.
- F. Hamilton, F. Gregson, D. Arnold, S. Sheikh, K. Ward, J. Brown, E. Moran, C. White, A. Morley, AERATOR Group, <u>B. R. Bzdek</u>, J. P. Reid, N. Maskell, and J. Dodd, "Aerosol Emission from the Respiratory Tract: An Analysis of Aerosol Generation from Oxygen Delivery Systems," *Thorax*, 2022, 77, 276-282.
- 18. S. Sheikh, F. W. Hamilton, G. W. Nava, F. K. A. Gregson, D. T. Arnold, C. Riley, J. Brown, AERATOR Group, J. P. Reid, <u>B. R. Bzdek</u>, N. A. Maskell, J. W. Dodd, "Are Aerosols Generated During Lung Function Testing in Patients and Healthy Volunteers? Results From the AERATOR Study," *Thorax*, 2022, 77, 292-294.
- F. K. A. Gregson, A. J. Shrimpton, F. Hamilton, T. M. Cook, J. P. Reid, A. E. Pickering, D. J. Pournaras, <u>B. R. Bzdek</u>, and J. M. Brown, "Identification of the Source Events for Aerosol Generation During Oesophago-Gastro-Duodenoscopy," *Gut*, 2022, 71, 871-878.
- L. P. McCarthy, C. M. Orton, N. A. Watson, F. K. A. Gregson, A. E. Haddrell, W. J. Browne, J. D. Calder, D. Costello, J. P. Reid, P. L. Shah*, and <u>B. R. Bzdek</u>*, "Aerosol and Droplet Generation from Performing with Woodwind and Brass Instruments," *Aerosol Science and Technology*, **2021**, 55, 1277-1287.
- 21. D. T. Arnold, F. K. A. Gregson, S. Sheikh, F. W. Hamilton, H. Welch, A. Dipper, G. W. Nava, J. W. Dodd, A. O. Clive, <u>B. R. Bzdek</u>, J. P. Reid, and N. A. Maskell, "Standard Pleural Interventions Are Not High-Risk Aerosol Generating Procedures," *European Respiratory Journal*, 2021, 58, 2101064, doi: 10.1183/13993003.01064-2021.
- 22. A. Shrimpton, F. K. A. Gregson, J. Brown, T. Cook, <u>B. R. Bzdek</u>, F. Hamilton, J. P. Reid, A. E. Pickering, and the AERATOR Study Group, "A Quantitative Evaluation of Aerosol

Generation During Supraglottic Airway Insertion and Removal," *Anaesthesia*, **2021**, *76*, 1577-1584.

- F. Hamilton, D. Arnold, <u>B. R. Bzdek</u>, J. Dodd, AERATOR group, J. Reid, and N. Maskell, "Aerosol Generating Procedures: Are They of Relevance for Transmission of SARS-CoV-2?" *The Lancet Respiratory Medicine*, **2021**, *9*, 687-689.
- 24. J. S. Walker, J. Archer, F. K. A. Gregson, S. E. S. Michel, <u>B. R. Bzdek</u>*, and J. P. Reid*, "Accurate Representations of the Microphysical Processes Occurring During the Transport of Exhaled Aerosols and Droplets," *ACS Central Science*, **2021**, 7, 200-209.
- 25. F. K. A. Gregson, N. A. Watson, C. M. Orton, A. E. Haddrell, L. P. McCarthy, T. J. R. Finnie, N. Gent, G. C. Donaldson, P. L. Shah, J. D. Calder, <u>B. R. Bzdek</u>, D. Costello, and J. P. Reid, "Comparing Aerosol Concentrations and Particle Size Distributions Generated by Singing, Speaking and Breathing," *Aerosol Science and Technology*, **2021**, *55*, 681-691.
- 26. R. Newsom, A. Amara, A. Hicks, M. Quint, C. Pattison, <u>B. R. Bzdek</u>, J. Burridge, C. Krawczyk, J. Dinsmore, J. Conway, "Comparison of Droplet Spread in Standard and Laminar Flow Operating Theatres: SPRAY Study Group," *Journal of Hospital Infection*, **2021**, *110*, 194-200.
- 27. A. Shrimpton, F. K. A. Gregson, T. M. Cook, J. Brown, <u>B. R. Bzdek</u>, J. P. Reid, and A. E. Pickering, "A Quantitative Evaluation of Aerosol Generation During Tracheal Intubation and Extubation: A Reply," *Anaesthesia*, **2021**, *76*, 16-18.
- 28. J. Brown, F. K. A. Gregson, A. Shrimpton, T. M. Cook, <u>B. R. Bzdek</u>, J. P. Reid, and A. E. Pickering*, "A Quantitative Evaluation of Aerosol Generation During Tracheal Intubation and Extubation," *Anaesthesia*, **2021**, *76*, 174-181. (Coverage in The Guardian and other news media; highlighted in NEJM Journal Watch, 21 October 2020)
- 29. <u>B. R. Bzdek</u>*, J. P. Reid*, J. Malila, and N. L. Prisle, "The Surface Tension of Surfactant-Containing, Finite Volume Droplets," *Proceedings of the National Academy of Sciences of the United States of America*, **2020**, *117*, 8335-8343.
- 30. R. E. H. Miles, M. W. J. Glerum, H. C. Boyer, J. S. Walker, C. S. Dutcher, and <u>B. R. Bzdek*</u>, "Surface Tensions of Picoliter Droplets with Sub-Millisecond Surface Age," *Journal of Physical Chemistry A*, **2019**, *123*, 3021-3029. (Young Scientist Virtual Special Issue)
- 31. A. Valenzuela, J. P. Reid, <u>B. R. Bzdek</u>, and A. J. Orr-Ewing, "Accuracy Required in Measurements of Refractive Index and Hygroscopic Response to Reduce Uncertainties in Estimates of Aerosol Radiative Forcing Efficiency," *Journal of Geophysical Research Atmospheres*, **2018**, *123*, 6469-6486.
- 32. <u>B. R. Bzdek</u>, J. W. DePalma, and M. V. Johnston, "Mechanisms of Atmospherically Relevant Cluster Growth," *Accounts of Chemical Research*, **2017**, *50*, 1965-1975.
- H. C. Boyer, <u>B. R. Bzdek</u>, J. P. Reid, and C. S. Dutcher, "Statistical Thermodynamic Model for Surface Tension of Organic and Inorganic Aqueous Mixtures," *Journal of Physical Chemistry* A, 2017, 121, 198-205.
- 34. A. E. Haddrell, R. E. H. Miles, <u>B. R. Bzdek</u>, J. P. Reid, R. J. Hopkins, and J. S. Walker, "Coalescence Sampling and Analysis of Aerosols Using Aerosol Optical Tweezers," *Analytical Chemistry*, **2017**, *89*, 2345–2352.
- M. I. Cotterell, R. E. Willoughby, <u>B. R. Bzdek</u>, A. J. Orr-Ewing, and J. P. Reid, "A Complete Parameterization of the Relative Humidity and Wavelength Dependence of the Refractive Index of Hygroscopic Inorganic Aerosol Particles," *Atmospheric Chemistry and Physics*, **2017**, *17*, 9837-9851.
- A. Marsh, G. Rovelli, Y. C. Song, K. L. Pereira, R. E. Willoughby, <u>B. R. Bzdek</u>, J. F. Hamilton, A. J. Orr-Ewing, D. O. Topping, and J. P. Reid, "Accurate Representations of the Physicochemical Properties of Atmospheric Aerosols: When are Laboratory Measurements of Value?" *Faraday Discussions*, **2017**, 200, 639-661.
- <u>B. R. Bzdek</u>, R. M. Power, S. H. Simpson, J. P. Reid, and C. P. Royall, "Precise, Contactless Measurements of the Surface Tension and Viscosity of Picolitre Aerosol Droplets," *Chemical Science*, 2016, 7, 274-295.
- 38. <u>B. R. Bzdek</u>, L. Collard, J. E. Sprittles, A. J. Hudson, and J. P. Reid, "Dynamic Measurements and Simulations of Airborne Picolitre-Droplet Coalescence in Holographic Optical Tweezers," *Journal of Chemical Physics*, **2016**, *145*, 054502, doi: 10.1063/1.4959901.

- Y. C. Song, A. E. Haddrell, <u>B. R. Bzdek</u>, J. P. Reid, T. Bannan, D. O. Topping, C. Percival, and C. Cai, "Measurements and Predictions of Binary Component Aerosol Particle Viscosity," *Journal of Physical Chemistry A*, 2016, 120, 8123-8137.
- 40. <u>B. R. Bzdek</u>, A. J. Horan, M. R. Pennington, N. J. Janechek, J. Baek, C. O. Stanier, and M. V. Johnston, "Silicon is a Frequent Component of Atmospheric Nanoparticles," *Environmental Science and Technology*, **2014**, *48*, 11137-11145. (Highlighted in C&E News, 7 October 2014)
- 41. <u>B. R. Bzdek</u>, M. J. Lawler, A. J. Horan, M. R. Pennington, J. W. DePalma, J. Zhao, J. N. Smith, and M. V. Johnston, "Molecular Constraints on Particle Growth during New Particle Formation," *Geophysical Research Letters*, **2014**, *41*, 6045-6054, doi: 10.1002/2014GL060160.
- 42. J. W. DePalma, <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Activation Barriers in the Growth of Molecular Clusters Containing Sulfuric Acid and Ammonia," *Journal of Physical Chemistry A*, **2014**, *118*, 11547-11554.
- 43. <u>B. R. Bzdek</u>, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation Energetics of Clusters Relevant to Atmospheric New Particle Formation," *Journal of the American Chemical Society*, **2013**, *135*, 3276-3285.
- 44. <u>B. R. Bzdek</u>, A. J. Horan, M. R. Pennington, J. W. DePalma, J. Zhao, C. N. Jen, D. R. Hanson, J. N. Smith, P. H. McMurry, and M. V. Johnston, "Quantitative and Time-Resolved Nanoparticle Composition Measurements during New Particle Formation," *Faraday Discussions*, **2013**, *165*, 25-43.
- 45. M. R. Pennington, <u>B. R. Bzdek</u>, J. W. DePalma, J. N. Smith, A.-M. Kortelainen, L. Hildebrandt Ruiz, T. Petäjä, M. Kulmala, D. R. Worsnop, and M. V. Johnston, "Identification and Quantification of Particle Growth Channels during New Particle Formation," *Atmospheric Chemistry and Physics*, **2013**, *13*, 10215-10225.
- 46. <u>B. R. Bzdek</u>, C. A. Zordan, M. R. Pennington, G. W. Luther III, and M. V. Johnston, "Quantitative Assessment of the Sulfuric Acid Contribution to New Particle Growth," *Environmental Science and Technology*, **2012**, *46*, 4365-4373.
- 47. J. W. DePalma, <u>B. R. Bzdek</u>, D. J. Doren, and M. V. Johnston, "Structure and Energetics of Nanometer Size Clusters of Sulfuric Acid with Ammonia and Dimethylamine," *Journal of Physical Chemistry A*, **2012**, *116*, 1030-1040.
- 48. M. R. Pennington, J. P. Klems, <u>B. R. Bzdek</u>, and M. V. Johnston, "Nanoparticle Chemical Composition and Diurnal Dependence at the CalNex Los Angeles Ground Site," *Journal of Geophysical Research Atmospheres*, **2012**, *117*, D00V10, doi: 10.1029/2011JD017061.
- 49. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Amine Reactivity with Charged Sulfuric Acid Clusters," *Atmospheric Chemistry and Physics*, **2011**, *11*, 8735-8743.
- 50. <u>B. R. Bzdek</u>, C. A. Zordan, G. W. Luther III, and M. V. Johnston, "Nanoparticle Chemical Composition during New Particle Formation," *Aerosol Science and Technology*, **2011**, *45*, 1041-1048.
- 51. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Reactivity of Methanesulfonic Acid Salt Clusters Relevant to Marine Air," *Journal of Geophysical Research Atmospheres*, **2011**, *116*, D03301, doi: 10.1029/2010JD015217.
- 52. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Size-dependent Reactions of Ammonium Bisulfate Clusters with Dimethylamine," *Journal of Physical Chemistry A*, **2010**, *114*, 11638-11644.
- 53. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Amine Exchange into Ammonium Bisulfate and Ammonium Nitrate Nuclei," *Atmospheric Chemistry and Physics*, **2010**, *10*, 3495-3503.
- 54. <u>B. R. Bzdek</u> and M. M. McGuire, "Polarized ATR-FTIR Investigation of Fe Reduction in the Uley Nontronites," *Clays and Clay Minerals*, **2009**, *57*, 227-233.

Review Articles (* = corresponding author):

- 1. <u>B. R. Bzdek</u>*, J. P. Reid*, and M. I. Cotterell*, "Open Questions on the Physical Properties of Aerosols," *Communications Chemistry*, **2020**, *3*, 105, doi: 10.1038/s42004-020-00342-9.
- <u>B. R. Bzdek</u>* and J. P. Reid*, "Aerosol Microphysics: From Molecules to the Chemical Physics of Aerosols," *Journal of Chemical Physics*, **2017**, *147*, 220901, doi: 10.1063/1.5002641. (Cover Article)

- 3. <u>B. R. Bzdek</u>, M. R. Pennington, and M. V. Johnston, "Single Particle Chemical Analysis of Ambient Ultrafine Aerosol: A Review," *Journal of Aerosol Science*, **2012**, *52*, 109-120.
- 4. <u>B. R. Bzdek</u> and M. V. Johnston, "New Particle Formation and Growth in the Troposphere," *Analytical Chemistry*, **2010**, *82*, 7871-7878.

Professional Journal Publications (* = corresponding author):

- 1. <u>B. R. Bzdek</u>*, "Identifying the Significance of Aerosol Surfaces to Climate, Health, and Industry," *The Project Repository Journal*, **2021**, *8*, 84-87. (Wrote an invited foreword to the issue)
- 2. <u>B. R. Bzdek</u>*, J. S. Walker, "Vibrational Spectroscopy of Individual Aerosol Droplets by Optical Tweezers," *Spectroscopy*, **2019**, *34*, 22-31.

Patent:

1. B. R. Bzdek and J. S. Walker, "Delivery of Picolitre Droplets to Mass Spectrometer," **2024**, UK IPO Application No. 2403368.0.

REF Impact Case Study:

1. <u>"Aerosol Science Informs Global Clinical and Public Health Policy on COVID-19</u> <u>Transmission,"</u> J.P. Reid and B. R. Bzdek, REF 2021.

This REF Impact Case Study details three branches of impact arising from research into respiratory aerosol generation during the COVID-19 pandemic. The first branch was developing a robust strategy to make measurements of respiratory aerosols in clinical settings and assess the risk of viral transmission during clinical procedures. The second branch was changing government guidance for the performing arts sector on the risk of pathogen transmission by professional singers and wind instrumentalists. The third branch was creating public awareness of the transmission of COVID-19 during community singing. The work in the performing arts was widely circulated in global media, with an estimated reach of 6.64 billion people (more than 80% of the global population). Collectively, the five Impact Case Studies submitted by the School of Chemistry scored 80%, contributing to its #1 ranking in Chemistry in REF 2021.

External Funding Acquired (£4.2 million):

As PI (£2.8 million):

- 1. "Comprehensive Investigations of Aerosol Droplet Surfaces and Their Climate Impacts," ERC, €2,315,245, 2021–2026, Project 948498, AeroSurf.
- 2. Philip Leverhulme Prize: "Time-Resolved Photochemistry of Organic Solutes in Aqueous Microdroplets," Leverhulme Trust, £100,000, 2023–2026.
- "Novel Approach for Aerosol Chemical Analysis of the 'Invisible' 3-10 nm Size Range," Co-I Coty Jen (Carnegie Mellon University, Chemical Engineering), Royal Society International Exchanges Scheme, £6,000, 2023–2024, IES\R1\231208.
- 4. "Measurements of Indoor Air Quality in a Victorian Home," Co-I Daniel Schien (University of Bristol, Computer Science), Dyson, £3,000, 2019–2020.
- "Impacts of Photoinitiated Chemical Processing on Climate Relevant Aerosol Processes," NERC, £577,819, 2017–2022.

As Co-PI (£1.4 million):

- "The Investigation of Particulate Respiratory Matter to Inform Guidance for the Safe Distancing of Performers in a COVID-19 Pandemic (PERFORM-2)", PI: Jonathan Reid, Co-I's: Declan Costello, <u>Bryan Bzdek</u>, Pallav Shah, James Calder, Natalie Watson, Christopher Orton, Justice Archer, Ruth Epstein, EPSRC (UKRI COVID-19 Rapid Response), £541,099, 2020–2021, EP/V050516/1.
- "AERosolisation And Transmission Of SARS-CoV-2 in Healthcare Settings (AERATOR)" PI: Nick Maskell; Co-I's: Jonathan Reid, Andrew Davidson, Fergus Hamilton, <u>Bryan Bzdek</u>, James Murray, Johannes Keller, Florence Gregson, James Dodd, David Arnold, Mark Gormley, NIHR-UKRI Rapid COVID Rolling Call, £432,784, 2020–2021, COV003, MC_PC_20017.

 "Supporting Early Career Researchers at the University of Bristol (Capital Award)" PI: Nishan Canagarajah; Co-I's: Craig Butts, <u>Bryan Bzdek</u>, Daniele Fiscaletti, Tom Oliver, John Russo, Raf Theunissen, Alastair Lennox, Krishna Coimbatore Balram, Christy Gamlath, EPSRC, £425,000 (£76,242 to Bzdek to support purchase of a Scanning Mobility Particle Sizer), 2018– 2020, EP/S018050/1.

Internal Funding Acquired (£18,350):

- 1. "Exploring the Commercial Impact of Single Picodroplet Mass Spectrometry", PI: Jim S. Walker, Co-I: <u>Bryan Bzdek</u>, EPSRC Impact Acceleration Account, £15,000, 2024.
- "Development of Predictive Frameworks for Indoor Air Quality", Lead Applicant: <u>Bryan</u> <u>Bzdek</u>; Other Applicants: Daniel Schien, Manuel Herrera, Martin Weinel, Yi Jin, Jonathan Norman, Kelly Thornber, GW4, £3,350, 2018–2019.

Invited Presentations, Seminars, and Colloquia:

- 1. "Characterising the Surface and Bulk Properties of Picolitre Droplets," <u>University of Leeds</u>, Leeds, United Kingdom, May 2024.
- 2. "Picoliter Droplet Surface Tensions Depend Strongly on Surface Area-To-Volume Ratio," <u>ACS Spring Meeting</u>, Indianapolis, Indiana, March 2023.
- 3. "Novel Approaches for Chemical Analysis of Aerosols and Droplets," <u>London Biological Mass</u> <u>Spectrometry Discussion Group</u>, London, December 2022.
- 4. "The Surface Tension of Surfactant Containing, Finite Volume Droplets" <u>Molecular</u> <u>Understanding of Atmospheric Aerosol</u>, Lake Arrowhead, California, May 2022.
- "Making Music: Aerosols, Droplets and the Risks of SARS-CoV-2 Transmission," <u>RAMP</u> <u>Task 7 Symposium: From exhalation to inhalation, COVID-19 infection risk indoors</u>, United Kingdom, September 2020.
- 6. "Quantitative, Contactless Measurements of Picolitre Droplet Surface Tension," <u>Pacific</u> <u>Conference on Spectroscopy and Dynamics</u>, San Diego, California, January 2019.
- 7. "Quantitative, Contactless Measurements of Picolitre Droplet Surface Tension," <u>University of</u> <u>California, Riverside</u>, Riverside, California, January 2019.
- 8. "The Role of Surfactants in Cloud Droplet Activation," <u>Mathematics for Atmospheric-Biospheric Science Workshop</u>, Hyytiälä, Finland, September 2018.
- 9. "Atmospheric Nanoparticle Formation, Growth, and Activation to Cloud Droplets," <u>University</u> of Bristol, Bristol, United Kingdom, November 2017.
- 10. "Quantification of the Partitioning Behaviour of Surfactants in Picolitre Droplets," Workshop on Droplet Coalescence, <u>Durham University</u>, Durham, United Kingdom, October 2017.
- 11. "From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension," <u>Pennsylvania State University</u>, State College, PA, January 2017.
- 12. "From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension," <u>University of Georgia</u>, Athens, GA, January 2017.
- 13. "From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension," <u>University of Illinois at Urbana–Champaign</u>, Champaign, IL, January 2017.
- 14. "From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension," <u>University of Maryland, College Park</u>, College Park, MD, January 2017.
- 15. "From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension," <u>The Ohio State University</u>, Columbus, OH, January 2017.
- 16. "From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension," Louisiana State University, Baton Rouge, LA, December 2016.
- 17. "The Formation and Growth of Ambient Nanoparticles," <u>University of Bristol</u>, Bristol, United Kingdom, March 2014.
- 18. "The Formation and Growth of Ambient Nanoparticles," <u>University of Toronto</u>, Toronto, Canada, October 2013.

- 19. "Particles in the Air We Breathe: Determining the Composition and Reactivity of Nanoparticles Relevant to Climate," <u>College of Saint Rose</u>, Albany, NY, November 2012.
- 20. "Composition and Reactivity of Atmospherically-relevant Nanoparticles by Mass Spectrometry," <u>Bucknell University</u>, Lewisburg, PA, April 2012.
- 21. "Composition and Reactivity of Atmospherically-relevant Nanoparticles by Mass Spectrometry," <u>Pittcon Conference and Expo</u>, Orlando, FL, March 2012.

Conference Platform Presentations:

- B. R. Bzdek and J. S. Walker, "Rapid and Sensitive Chemical Analysis of Individual Picoliter Droplets by Mass Spectrometry," 72nd ASMS Conference on Mass Spectrometry and Allied Topics, Anaheim, CA, June 2024.
- 2. <u>B. R. Bzdek</u>, A. Bain, K. Ghosh, and N. L. Prisle, "Surface-Area-to-Volume Ratio Determines Surface Tensions in Microscopic, Surfactant-Containing Droplets," Molecular Understanding of Atmospheric Aerosol, Corsica, France, April 2024.
- <u>B. R. Bzdek</u>, A. Bain, and L. Lalemi, "Experimental Investigations of Equilibrium and Dynamic Picoliter Droplet Surface Tension," AAAR 40th Annual Conference, Raleigh, NC, October 2022
- 4. <u>B. R. Bzdek</u>, J. P. Reid, J. Malila, and N. L. Prisle, "Surface Tension of Surfactant-Containing, Finite Volume Droplets," AAAR 38th Annual Conference, October 2020 (online).
- 5. <u>B. R. Bzdek</u>, J. P. Reid, J. Malila, and N. L. Prisle, "Surface Tension of Surfactant-Containing, Finite Volume Droplets," European Geophysical Union, May 2020 (online).
- <u>B. R. Bzdek</u>, R. E. H. Miles, M. W. J. Glerum, H. C. Boyer, J. S. Walker, J. P. Reid and C. S. Dutcher "Surface Tensions of Picoliter Droplets with Sub-Millisecond Surface Age," AAAR 37th Annual Conference, Portland, OR, October 2019.
- B. R. Bzdek, R. E. H. Miles, M. W. J. Glerum, H. C. Boyer, J. S. Walker, and C. S. Dutcher "Surface Tensions of Picoliter Droplets with Sub-Millisecond Surface Age," Droplets 2019, Durham, UK, September 2019.
- <u>B. R. Bzdek</u>, J. Malila, N. L. Prisle, and J. P. Reid, "Measurements and Modelling of Surfactant Coated Aerosol Particles," Xth International Aerosol Conference, St. Louis, MO, September 2018.
- 9. <u>B. R. Bzdek</u> and J. P. Reid, "Quantification of the Partitioning Behaviour of Surfactants in Picolitre Droplets," AAAR 36th Annual Conference, Raleigh, NC, October 2017.
- 10. <u>B. R. Bzdek</u>, F. H. Marshall, Y.-C. Song, A. E. Haddrell, and J. P. Reid, "Surface Tensions, Viscosities, and Diffusion Constants in Mixed Component Single Aerosol Particles," Towards a Molecular Understanding of Atmospheric Aerosol, Chaminade, CA, August 2016.
- <u>B. R. Bzdek</u>, F. H. Marshall, Y.-C. Song, A. E. Haddrell, and J. P. Reid, "Surface Tensions, Viscosities, and Diffusion Constants in Mixed Component Single Aerosol Particles," European Geophysical Union General Assembly 2016, Vienna, Austria, April 2016.
- 12. <u>B. R. Bzdek</u>, R. M. Power, and J. P. Reid, "Direct and Quantitative Measurement of the Surface Tension of Airborne Microdroplets," 249th ACS National Meeting, Denver, CO, March 2015.
- 13. <u>B. R. Bzdek</u>, A. J. Horan, M. R. Pennington, and M. V. Johnston, "Silicon is a Frequent Component of Atmospheric Nanoparticles," Annual UK Aerosol Society Conference, Birmingham, UK, November 2014.
- 14. <u>B. R. Bzdek</u>, M. R. Pennington, A. J. Horan, C. A. Zordan, and M. V. Johnston, "Silicon is a Nearly Ubiquitous Component of Ambient Nanoparticles," 62nd ASMS Conference on Mass Spectrometry and Allied Topics, Baltimore, MD, June 2014.
- 15. <u>B. R. Bzdek</u>, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation and Growth Energetics of Clusters Relevant to Atmospheric New Particle Formation," AGU Fall Meeting, San Francisco, CA, December 2013.
- <u>B. R. Bzdek</u>, A. J. Horan, M. R. Pennington, J. W. DePalma, and M. V. Johnston, "Quantitative and Time-resolved Nanoparticle Composition Measurements during New Particle Formation," AAAR 32nd Annual Conference, Portland, OR, October 2013.
- 17. <u>B. R. Bzdek</u>, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation and Growth Energetics of Clusters Relevant to New Particle Formation," 19th International Conference on Nucleation and Atmospheric Aerosols, Fort Collins, CO, June 2013.

- <u>B. R. Bzdek</u>, M. R. Pennington, and M. V. Johnston, "Nanoparticle Chemical Composition during New Particle Formation," AAAR 31st Annual Conference, Minneapolis, MN, October 2012.
- 19. <u>B. R. Bzdek</u>, A. J. Horan, M. R. Pennington, and M. V. Johnston, "Particle Size-dependent Incorporation of Dimethylamine into Ammonium Sulfate and Nitrate Nanoparticles," AAAR 31st Annual Conference, Minneapolis, MN, October 2012.
- 20. <u>B. R. Bzdek</u>, J. W. DePalma, J. Laskin, D. P. Ridge, and M. V. Johnston, "Composition, Reactivity and Energetics of Sulphuric Acid Clusters Containing Ammonia and Amines," European Aerosol Conference, Granada, Spain, September 2012.
- 21. <u>B. R. Bzdek</u>, M. R. Pennington, C. A. Zordan, and M. V. Johnston, "Chemical Composition of Newly Formed Nanoparticles in Diverse Environments by the Nano Aerosol Mass Spectrometer," AGU Fall Meeting, San Francisco, CA, December 2011.
- 22. <u>B. R. Bzdek</u>, J. W. DePalma, D. P. Ridge, and M. V. Johnston, "Effect of Particle Size and Charge on the Reactivity of Sulfuric Acid Clusters with Ammonia and Amines," AAAR 30th Annual Conference, Orlando, FL, October 2011.
- 23. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Size-dependent Reactions of Ammonium Bisulfate Nuclei," AAAR 29th Annual Conference, Portland, OR, October 2010.
- 24. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Composition and Reactivity of Sub-3 nm Ammonium/Aminium Sulfate Clusters," International Aerosol Conference, Helsinki, Finland, September 2010.
- 25. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Aliphatic Amines Efficiently Displace Ammonia in Ammonium Sulfate Clusters," AAAR 28th Annual Conference, Minneapolis, MN, October 2009.

Conference Poster Presentations:

- 1. <u>B. R. Bzdek</u>, R. E. H. Miles, M. W. J. Glerum, H. C. Boyer, J. S. Walker, and C. S. Dutcher "Surface Tensions of Picoliter Droplets with Sub-Millisecond Surface Age," European Aerosol Conference, Gothenburg, Sweden, August 2019.
- 2. <u>B. R. Bzdek</u> and L. Lalemi, "Resolving the Factors Governing Particle Phase Photochemistry," Xth International Aerosol Conference, St. Louis, MO, September 2018.
- 3. <u>B. R. Bzdek</u>, J. Malila, N. L. Prisle, and J. P. Reid, "Measurements and Modelling of Surfactant Coated Aerosol Particles," Towards a Molecular Understanding of Atmospheric Aerosol, Bonn, Germany, August 2018.
- B. R. Bzdek, H. C. Boyer, C. S. Dutcher, and J. P. Reid, "Surface Properties of Organic-Inorganic and Organic-Inorganic-Surfactant Aerosol Droplets using Holographic Optical Tweezers," AAAR 35th Annual Conference, Portland, OR, October 2016.
- <u>B. R. Bzdek</u>, A. E. Haddrell, Y. C. Song, D. O. Topping, and J. P. Reid, "Direct Measurements to Compare the Surface and Bulk Properties of Mixed Component Aerosol Droplets: Simultaneous Surface Tension and Viscosity Measurements," AAAR 35th Annual Conference, Portland, OR, October 2016.
- 6. <u>B. R. Bzdek</u>, L. Collard, J. E. Sprittles, A. J. Hudson, and J. P. Reid, "Dynamic Measurements and Simulations of Airborne Picolitre-Droplet Coalescence in Holographic Optical Tweezers," Towards a Molecular Understanding of Atmospheric Aerosol, Chaminade, CA, August 2016.
- 7. <u>B. R. Bzdek</u>, R. M. Power, and J. P. Reid, "Quantitative and Simultaneous Determination of the Surface Tension and Viscosity of Airborne Microdroplets," European Aerosol Conference, Milan, Italy, September 2015. (Best Poster Award)
- 8. <u>B. R. Bzdek</u>, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation and Growth Energetics of Ammonium Bisulfate Clusters Relevant to Atmospheric New Particle Formation," AGU Fall Meeting, San Francisco, CA, December 2012.
- 9. M. V. Johnston, M. R. Pennington, <u>B. R. Bzdek</u>, and J. W. DePalma, "Nanoparticle Growth Mechanisms during New Particle Formation," AGU Fall Meeting, San Francisco, CA, December 2012.
- <u>B. R. Bzdek</u>, C. A. Zordan, G. W. Luther III, and M. V. Johnston, "Nanoparticle Chemical Composition during New Particle Formation by the Nano Aerosol Mass Spectrometer," AAAR 30th Annual Conference, Orlando, FL, October 2011.

- 11. <u>B. R. Bzdek</u>, D. P. Ridge, and M. V. Johnston, "Substitution Kinetics and Energetics of Aliphatic Amines for Ammonia in Aerosols," 2009 AGU Fall Meeting, San Francisco, CA, December 2009.
- 12. <u>B. R. Bzdek</u> and M. V. Johnston, "Reactions of Aliphatic Amines with Ammonium Sulfate Clusters," 57th ASMS Conference on Mass Spectrometry, Philadelphia, PA, June 2009.
- 13. <u>B. R. Bzdek</u> and M. M. McGuire, "Structural Comparison of Two Nontronite Clays using Polarized ATR-FTIR," 235th ACS National Meeting, New Orleans, LA, April 2008. (Best Poster Award)

Media Contributions:

I was interviewed extensively during the COVID-19 pandemic with respect to risks of viral transmission from aerosols and droplets. Across 2020-2021 I was quoted on more than 25 distinct occasions in various news media. Examples include quotations in BBC News (twice), CNN (twice), HuffPost (three times), and Telegraph (four times). I gave multiple live and prerecorded radio interviews, including: BBC Radio West Midlands, CBS News Weekend Roundup, Talk Radio Europe, Radio 5 Live. I also participated in a 15-minute-long radio segment on aerosols and COVID-19 for Big Picture Science, a popular public radio program in the USA. Beyond my individual media contributions, my COVID-19 research featured in news media including the BBC Breakfast Programme and News at 6 (aerosol generation from performing arts) as well as on the front page of The Guardian (aerosol generation in clinical settings).

Impact of Research:

A project exploring aerosol generation from singing, speaking, musical instrument playing, and breathing led directly to changes in UK Government guidance in the performing arts sector (considered by SAGE on 13/08/2020; UK guidance published 15/08/2020). Further details are in the description of the REF 2021 Impact Case Study. A project quantifying aerosol generation in clinical environments informed international policy on appropriate personal protective equipment in clinical settings and led to a revision of the NHS England Infection Prevention and Control manual, where several aerosol generating procedures were removed from the list.

Postgraduate Advising:

Primary supervisor:

Nathan Croll-Dawes, 2023–Present, co-supervisor Jim Walker, EPSRC Aerosol Science CDT Conlan Broderick, 2022–Present, co-supervisor Andrew Orr-Ewing, EPSRC Aerosol Science CDT

Isabel Quant, 2021–Present, EPSRC Aerosol Science CDT Joshua Harrison, 2019–2024, EPSRC Aerosol Science CDT Lara Lalemi, 2018–2024, NERC GW4+ DTP

Secondary supervisor:

Abigail McConnell, 2021–Present, primary supervisor Dwayne Heard, Leeds, Chemistry, EPSRC Aerosol Science CDT

<u>Thematic Broadening Sabbatical supervisor</u>: These students completed a 3-month thematic broadening sabbatical in my group as part of their initial taught year through the Aerosol Science CDT:

Kelvin Risby, 2021–Present, primary supervisor Adam Boies, Cambridge, Engineering Frederick Bertani, 2020–Present, primary supervisor Simone Hochgreb, Cambridge, Engineering

TEACHING

Undergraduate and Postgraduate Teaching:

Tutorials. Personal tutees include 1 first-year student, 5 second-year students, 2022–Present: 1 third-year student, and 2 fourth-year students. CAS 1.4 "Nucleation and New Particle Formation" and CAS 2.5 2019–Present: "Analysis: Phase, Composition, and Volatility" (Aerosol Science CDT). These two courses are for ~20 students in their taught first year of postgraduate studies. The teaching method used is team-based learning, which includes asynchronous lectures and problem sets, synchronous mini-lectures at the start of each day to clarify key points, and team-based exercises based on real-world problems. Formative assessments include individual and team-based tests on each day of course material delivery. The summative assessment consists of multiple-choice questions at the conclusion of the course. Student feedback is very positive, complimenting the blend of mathematics and conceptual problem-solving as "spot on". 2018–Present: CHEM-M0029: Topics in Current Research, Aerosols Course. This course is for ~80 final-year MSci Chemistry students. The teaching method is a flipped classroom approach modelled on team-based learning. Each class session has a specific theme, and relevant pre-recorded lectures and online quizzes are made available before each synchronous class session. In class, students are split into teams of 4-5 each. All work on the same application exercise, which is a real-world application of the material covered in the preclass materials. Teams are provided with a set of four potential solutions. Near the end of the class session, teams vote for their preferred solution, and I facilitate a cross-team discussion where each team justifies their choice to other teams. I conclude with a mini-lecture that emphasises the key points the students should take away from the pre-class materials and application exercise. The summative assessment is a final exam question covering the course content. The student feedback on this course (2020-2021 iteration) stated that the course was well organised and easy to follow (5/5), that the synchronous sessions were helpful and stimulating (4.7/5), and that students felt well supported by the lecturer (5/5). 2017–Present: Undergraduate Project Student Supervisor. I supervise 2-3 final year MSci and BSc students per year. The role includes developing a suitable project, regular meetings with the students, and providing guidance with writing project theses and creating oral and poster presentations. 2017–Present: Assessor for 5-7 final year MSci and BSc project students per year. Annual Progress Monitoring Interviewer for ~5 Ph.D. students each year. 2017–Present: 2022-2023: CHEM-10003: Introductory Chemistry Workshops. This course is for firstyear chemistry students. The students complete a problem set in small groups, and I (along with a colleague) provide support to the students in completing the exercises. I address common problems to the whole class and individually where appropriate. 2021: Contributor to a University College, London, Massive Open Online Course named "Airway Matters". The course is for clinicians, and my contribution was to a panel discussion about aerosols and COVID-19. The course has significant reach, having been accessed by ~24,000 individuals in 164 countries.

Professional Development:

2022

Fellow of the Higher Education Academy

ACADEMIC LEADERSHIP AND CITIZENSHIP

2025:	UK Scientific Committee, European Colloids and Interface Society 2025
	Conference (Bristol, UK)
2024:	Conference Chair, Annual Aerosol Society Conference (York, UK)
2022–Present:	Member, Annual Aerosol Society Conference Organising Committee
2023:	Guest Editor for a special issue of the RSC journal Environmental Science:
	Atmospheres with the theme "Particle Levitation to Address Challenges in
	Atmospheric Science"
2020-2022:	NIHR Aerosol Generating Procedures Task and Finish Group. This group
	shared expertise and knowledge about aerosol generating procedures with
	clinicians across the UK. It reported to the Urgent Public Health Group.
2019:	Organised a GW4-sponsored workshop on indoor air quality that attracted
	participants from Bath, Bristol, Cardiff, and Exeter, as well as representatives
	from government agencies and industry.
2018–Present:	Student poster competition judge at the AAAR conference
2017–Present:	Session chair at the AAAR conference

Academic Leadership in the University:

2022–Present:	Director, Bristol Aerosols and Colloids Instrument Centre. This centre
	incorporates 36 pieces of equipment relevant to aerosols (e.g. aerosol sizers,
	particle counters) and colloids (e.g. tensiometers, rheometers, foam analysers)
	with a total value $>$ £1 million. The goal of this centre is to provide free access
	to these instruments for researchers across the University. To this end, I
	secured an annual budget to cover necessary instrument maintenance and
	dedicated technician time to handle instrument training and ensure instruments
	are in good working order. The centre currently has ~40 users spanning the
	faculties of Science, Engineering, Life Sciences, and Health Sciences.
2021–Present:	Chair, Library Committee. This role is central to communicating open access
	publishing procedures and concerns between the Library and the School of
	Chemistry.
2019-2023:	Organiser/host Aerosol Science CDT webinar series (~25 speakers per year)
2019-2022:	Organiser/host for the Computational Chemistry, Theory, and Dynamics
	theme webinars (4-6 speakers per year)
2019–Present:	Interviewer for the CDT in Aerosol Science and NERC GW4+ DTP
2019–Present:	Reviewer for NERC grants through the internal demand management process
2018–Present:	Mock interview panel member for fellowship candidates

Professional Activities Outside the University:

2023:	Member, NERC Pushing the Frontiers Assessment Panel 2, July 2023 Round
2022–Present:	Member, Development Committee, American Association for Aerosol
	Research
2022–Present:	Member, UK and Ireland Aerosol Society Committee
2021–Present:	Early Career Editorial Board, Journal of Aerosol Science
2020–Present:	Peer reviewer for US NSF, Swiss NSF, and NERC funding agencies
2015–Present:	Peer reviewer many academic journals including: ACS Cent. Sci., Environ.
	Sci. Technol. Lett., Environ. Sci. Technol., Anal. Chem., Atmos. Chem. Phys.,
	ACS Earth Sp. Chem., J. Phys. Chem. A, Aerosol Sci. Technol., J. Aerosol Sci.
2018:	Participated in the Royal Society Pairing Scheme one-day workshop at the
	Houses of Parliament, which included workshops on how science impacts
	policy and a reception with ministers, MPs, peers, and civil servants.
2018:	Participated in the 2018 GW4 Crucible, a series of workshops designed for
	early career faculty to foster interdisciplinary and inter-institutional
	collaborations as well as engage with government, media, and the public.

2017: Engaged with UK policy makers at the Houses of Parliament through STEM for Britain program, a highly competitive poster competition.