Curriculum Vitae – Jonathan Reid

1. Personal Details

Full Name:	Dr. Jonathan P. Reid	Date of Birth: 1st July 1972
Address:	School of Chemistry	E-mail: j.p.reid@bristol.ac.uk
	University of Bristol,	Tel: (0117) 331 7388
	Bristol, BS8 1TS	ORCID: 0000-0001-6022-1778
	Website: http://www.bristol.ac.uk/chemistry/research/barc/	

2. Present Appointments

2023 – present	Head of Physical & Theoretical Chemistry, School of Chemistry, Univ. of Bristol
2019 – present	Director of the EPSRC Centre for Doctoral Training in Aerosol Science.
2009 – present	Professor of Physical Chemistry, School of Chemistry, University of Bristol.

3. Previous Appointments

2006 – 2009	Reader in Physical Chemistry, School of Chemistry, University of Bristol.
2004 – 2006	Lecturer in Physical Chemistry, School of Chemistry, University of Bristol.
2000 – 2004	Lecturer in Physical Chemistry, School of Chemistry, University of Birmingham.
1997 – 2000	Post-Doctoral Research Associate, JILA, University of Colorado, USA.

4. Academic Qualifications

1997	D. Phil., Wadham College, University of Oxford (Physical and Theoretical Chemistry Laboratory). Title: *Vibrational Energy Transfer in Gases at Low Temperatures*. Advisor: Dr. C.J.S.M. Simpson.
1994	First Class Honours, MA, Chemistry, University of Oxford.
1990	A-levels (Chemistry A, Physics A, Mathematics A, Further Mathematics A), Sir Joseph Williamson's Mathematical School for Boys, Rochester, Kent.

5. Awards, Honours and Distinctions

2025	Sinclair Award, *American Association for Aerosol Research* (AAAR) for sustained excellence in aerosol research and technology as an established scientist.
2025	Faraday Horizon Prize, *Royal Society of Chemistry*, awarded to the PERFORM COVID-19 Team for 'advancing the understanding of the physico-chemical properties of exhaled aerosols, and their impact on the transmissibility of respiratory pathogens' (JPR team leader).
2023	Harold S. Johnston Lecture in Physical Chemistry Award, University of California Berkeley, Department of Chemistry, USA.
2021	Tilden Prize, *Royal Society of Chemistry*, awarded for 'pioneering studies of the chemical and physical properties of micron-scale aerosol particles, and their impact in atmospheric, health, analytical and formulation sciences'.
2009 – 2015	Leadership Fellow, *Engineering and Physical Sciences Research Council*.
2013	Corday-Morgan Prize, *Royal Society of Chemistry*, awarded for 'outstanding achievements in the study of physical and chemical properties of aerosol particles'.
2009 – 2015	Visiting Professor, Beijing Institute of Technology, China.
2004 – 2009	Advanced Research Fellow, *Engineering and Physical Sciences Research Council*.
2004	Marlow Medal, Faraday Division of the *Royal Society of Chemistry*, awarded for 'the most meritorious contributions to physical chemistry or chemical physics' by a chemist prior to their 32nd birthday.

2003 Millennium Medal of *Science Engineering and Technology for Britain*, awarded for presentation of research in the Houses of Parliament during *Chemistry Week*, November 2003.

2001 Harrison Memorial Prize of the *Royal Society of Chemistry*, awarded to a British theoretical or physical chemist who is under 30 years of age for their 'promising original investigations in chemistry'.

6. Research and Related Administration

Aerosols are important in a broad range of scientific disciplines, from their influence on atmospheric chemistry and physics and their impact on climate change, through to their application in industrial processes such as spray drying, their use in the delivery of drugs to the lungs and the delivery of fuels for combustion, and their impact on health in polluted urban environments. My main achievements in research have arisen from developing novel and unique strategies for characterising the properties and investigating the physicochemical dynamics of aerosol particles spanning human participant studies of respiratory aerosols, the airborne survival of pathogens, and the use of optical and electrodynamic tools to manipulate and characterise individual particles. I have published over 275 manuscripts in internationally leading peer-reviewed journals, secured research income from UK research councils with a total value of £15.9M and £3.3M as co-investigator since 2001, and a further £1.2M from industry. I have collaborated with leading researchers from around the world, securing funding and publishing papers with more than 50 academics over the last 5 years alone, building a substantial network of excellence in aerosol research. I have secured two substantial tranches of funding (EPSRC, £15.5M; industrial and public sector partners, £7.1M; universities, £5.4M) to establish the EPSRC Centre for Doctoral Training in Aerosol Science as Director.

Publications (Please refer to my full publication list at the end of this CV for a complete record)

I have published more than 275 publications in peer-reviewed journals and 1 published book as editor (Fundamentals and Applications in Aerosol Spectroscopy, CRC Press). I have an H-index of 66 (Google Scholar, 27/3/26) with a total of 16225 citations, 7971 since 2021, and accruing over 1500 citations/year for each of the last 4 years. I have 223 publications with over 10 citations (an i10-index of 223), 156 since 2021.

Since 2020, JPR has published 43 papers on the airborne transmission of pathogens such as COVID-19 covering topics including: the airborne stability of the SARS-CoV-2 virus; the transmission risks of aerosol generating procedures; measurements of exhaled respiratory aerosol during talking, singing, exercise and playing musical instruments; the transport of aerosol in indoor spaces; and the efficacy of face masks. Collectively these have already received >1500 citations.

Twenty most significant academic research papers as corresponding author in reverse chronological order

(1) A. Haddrell, H. Oswin, M. Otero-Fernandez, J.F. Robinson, T. Cogan, R. Alexander, J.F.S. Mann, D. Hill, A. Finn, A.D. Davidson and J.P. Reid, Ambient Carbon Dioxide Concentration Correlates with SARS-CoV-2 Aerostability and Infection Risk, Nat. Commun., 2024, 15, 3487. [Citations: 67]

(2) B. Moseley, J. Archer, C.M. Orton, H.E. Symons, N.A. Watson, B. Saccente-Kennedy, K.E. J. Philip, J.H. Hull, D. Costello, J.D. Calder, P.L. Shah, B.R. Bzdek and J.P. Reid, Relationship between Exhaled Aerosol and Carbon Dioxide Emission Across Respiratory Activities, Environ. Sci. Technol., 2024, 58, 15120-15126 [Citations: 12]

(3) H.P. Oswin, A.E. Haddrell, M. Otero-Fernandez, J.F.S. Mann, T.A. Cogan, T.G. Hilditch, J. Tian, D.A. Hardy, D.J. Hill, A. Finn, A. D. Davidson and J.P. Reid, The Dynamics of SARS-CoV-2 Infectivity with Changes in Aerosol Microenvironment, Proc. Natl. Acad. Sci., 2022, 119 (27), e2200109119. [Citations: 195]

(4) 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, B.R. Bzdek, 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. [Citations: 78]

(5) 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, B.R. Bzdek, J.H. Hull, J.P. Reid and P.L. Shah, A comparison of respiratory particle emission rates at rest and while speaking or exercising, Commun. Med., 2022, 2, 44. [Citations: 43]

(6) J. S. Walker, J. Archer, F.K.A. Gregson, S.E.S. Michel, B.R. Bzdek and J.P. Reid, Accurate Representations of the Microphysical Processes Occurring during the Transport of Exhaled Aerosols and Droplets. ACS Cent. Sci. 2021, 7, 200–209. [Citations: 109]

(7) J. Brown, F.K.A. Gregson, A. Shrimpton, T.M. Cook, B.R. Bzdek, J.P. Reid and A.E. Pickering, A Quantitative Evaluation of Aerosol Generation during Tracheal Intubation and Extubation. Anaesthesia 2021, 76, 174–181. [Citations: 224]

(8) F.K.A. Gregson, N. Watson, C. Orton, A. Haddrell, L. McCarthy, T. Finnie, N. Gent, G. Donaldson, P. Shah, J. Calder, B.R. Bzdek, D. Costello and J.P. Reid, Comparing Aerosol Concentrations and Particle Size Distributions Generated by Singing, Speaking and Breathing. Aerosol Sci. Technol. 2021, 55, 681–691. [Citations: 250]

(9) B.R. Bzdek, J.P. Reid, J. Malila and N.L. Prisle, The Surface Tension of Surfactant-Containing, Finite Volume Droplets. Proc. Natl. Acad. Sci. U. S. A. 2020, 117, 8335–8343. [Citations: 167]

(10) M.O. Fernandez, R.J. Thomas, N.J. Garton, A. Hudson, A. Haddrell, and J.P. Reid, Assessing the Airborne Survival of Bacteria in Populations of Aerosol Droplets with a Novel Technology. J. R. Soc. Interface 2019, 16, 20180779. [Citations: 95]

(11) J.P. Reid, A.K. Bertram, D.O. Topping, A. Laskin, S.T. Martin, M.D. Petters, F.D. Pope, and G. Rovelli, The Viscosity of Atmospherically Relevant Organic Particles. Nat. Commun. 2018, 9, 956. [Citations: 454]

(12) F.H. Marshall, R.E.H. Miles, Y.-C. Song, P. Ohm, R.M. Power, J.P. Reid and C.S. Dutcher, Diffusion and Reactivity in Ultraviscous Aerosol and the Correlation with Particle Viscosity. Chem. Sci. 2016, 7, 1298–1308. [Citations: 129]

(13) B.R. Bzdek, R.M. Power, S.H. Simpson, J.P. Reid and C.P. Royall, Precise, Contactless Measurements of the Surface Tension of Picolitre Aerosol Droplets. Chem. Sci. 2016, 7, 274–285. [Citations:139]

(14) J.F. Davies, R.E.H. Miles, A.E. Haddrell and J.P. Reid, Influence of Organic Films on the Evaporation and Condensation of Water in Aerosol. Proc. Natl. Acad. Sci. U. S. A. 2013, 110, 8807–8812. [Citations: 183]

(15) R.M. Power, S.H. Simpson, J.P. Reid and A.J. Hudson, The Transition from Liquid to Solid-Like Behaviour in Ultrahigh Viscosity Aerosol Particles. Chem. Sci. 2013, 4, 2597–2604. [Citations: 249]

(16) D.L. Bones, J.P. Reid, D.M. Lienhard and U.K. Krieger, Comparing the Mechanism of Water Condensation and Evaporation in Glassy Aerosol. Proc. Natl. Acad. Sci. U. S. A. 2012, 109, 11613–11618. [Citations: 233]

(17) J.P. Reid, B.J. Dennis-Smither, N.O. Kwamena, R.E.H. Miles, K.L. Hanford and C.J. Homer, The Morphology of Aerosol Particles Consisting of Hydrophobic and Hydrophilic Phases: Hydrocarbons, Alcohols and Fatty Acids as the Hydrophobic Component. Phys. Chem. Chem. Phys. 2011, 13, 15559–15572. [Citations: 159]

(18) R.E.H. Miles, K.J. Knox, J.P. Reid, A.M.C. Laurain and L. Mitchem, Measurements of Mass and Heat Transfer at a Liquid Water Surface During Condensation or Evaporation of a Sub-Nanometre Thickness Layer of Water. Phys. Rev. Lett. 2010, 105, 116101. [Citations: 54]

(19) R. Symes, R.M. Sayer and J.P. Reid, Cavity Enhanced Droplet Spectroscopy: Principles, Perspectives and Prospects. Phys. Chem. Chem. Phys. 2004, 6, 474–487. [Citations: 246]

(20) R.J. Hopkins, L. Mitchem, A.D. Ward and J.P. Reid, Control and Characterisation of a Single Aerosol Droplet in a Single-Beam Gradient-Force Optical Trap. Phys. Chem. Chem. Phys. 2004, 6, 4924–4927. [Citations: 246]

Edited Book

R. Signorell and J.P. Reid (ed), *Fundamentals and Applications in Aerosol Spectroscopy*, Taylor and Francis, CRC Press (2011) (18 chapters, 46 co-authors).

Edited Book Chapters

J.P. Reid, 'Aerosols' in *Colloid Science: Theory, Methods and Application*, T. Cosgrove, Editor, Blackwells Publishing: Oxford (2005), p. 180-200.

Research Funding

I have secured substantive grants as principal investigator from RCUK (EPSRC, NERC, BBSRC and MRC) with total value of £15.9M, and £3.3M as co-investigator. I have secured a further £1.2M from industry including from Chiesi Farmaceutici, Danone, DSTL, Steer Energy and the US Department of Homeland Security. Studentships awarded and not included in the list below include funding from: NERC National Centre for Atmospheric Science, EPSRC iCASE with DSTL, and a jointly funded studentship from Chiesi Farmaceutici and the National Productivity Investment Fund. I have secured additional studentship funding

for cofounding CDT studentships, from DSTL, Chiesi Farmaceutici, and the industry club supporting the EPSRC Future Formulations project (see project partners listed for this grant below).

Current Funding (PI as indicated below)

2024 – 2032 EPSRC (£8.2M, EP/S023593/1), 'Centre for Doctoral Training in Aerosol Science'. PI: JPR. Co-investigators: Dr. Adam Squires (University of Bath), Prof. Simone Hochgreb (University of Cambridge), Prof. Darragh Murnane (University of Hetrfordshire), Dr. Laura Urbano (University of Hetrfordshire), Dr. Marc Stettler (Imperial), Prof. Francis Pope (University of Birmingham), Dr. Rachael Miles (University of Bristol), Prof. David Topping (University of Manchester) and Prof. Prashant Kumar (University of Surrey). The CDT is supported by a broad range of industrial and public sector partners with committed additional funding of ~£7M from partners and collaborating institutions.

2019 – 2027 EPSRC (£7.0M, EP/S023593/1), 'Centre for Doctoral Training in Aerosol Science'. PI: JPR. Co-investigators: Dr. Adam Squires (University of Bath), Dr. Adam Boies (University of Cambridge), Prof. Simone Hochgreb (University of Cambridge), Prof. Darragh Murnane (University of Hetrfordshire), Dr. Victoria Hutter (University of Hetrfordshire), Dr. Marc Stettler (Imperial), Prof. Andrew Bayly (University of Leeds), Prof. Sheena Cruickshank (University of Manchester), Dr. David Topping (University of Manchester). The CDT is supported by a broad range of industrial and public sector partners with committed additional funding of ~£5.5M from partners and collaborating institutions.

Completed Funding

2022 – 2026 EPSRC (£1.03M, EP/W022206/1 and EP/W022214/1), 'Fundamental Studies of the Drying of Complex Multiphase Aerosol Droplets'. PI: JPR. Co-investigators: Prof. Steven Armes (University of Sheffield) and Prof. David Topping (University of Manchester).

2022 – 2025 BBSRC (£697k, BB/W00884X/1) 'Exploring the Factors that Determine the Survival of Viruses in Aerosols and Droplets'. PI: JPR. Co-investigators: Prof. Andrew Davidson and Dr. Darryl Hill (Cellular and Molecular Medicine, University of Bristol) and Dr. Tristan Cogan and Dr. Jamie Mann (Bristol Veterinary School).

2020 – 2022 NIHR/DHSC (£432k, COVID Urgency), 'Aerosolisation and Transmission Of SARS-CoV-2 in Healthcare Settings (AERATOR). PI: Prof. Nick Maskell (North Bristol NHS Trust). Co-investigators: JPR, Dr. Bryan Bzdek, Dr. Florence Gregson and Prof. Andrew Davidson (University of Bristol); Dr. Fergus Hamilton, Mr James Murray, Mr. Johannes Keller, Dr. James Dodd, Dr. David Arnold (North Bristol NHS Trust); and Mr Mark Gormley (Bristol Dental School).

2020 – 2021 EPSRC (£541k, COVID Urgency), 'Investigation of Particulate Respiratory Matter to Inform Guidance for Safe Distancing of Performers in a COVID-19 Pandemic'. PI: JPR. Co-investigators: Mr. Declan Costello (Wexham Park Hospital), Dr. Bryan Bzdek (University of Bristol), Prof. Pallav Shah (Imperial College London), Prof. James Calder (Imperial College London), Miss Natalie Watson (Lewisham and Greenwich NHS Trust), Dr. Chris Orton (Royal Brompton Hospital), Dr. Justice Archer (University of Bristol), Dr. Ruth Epstein (Royal National Ear Nose and Throat and Eastman Dental Hospitals).

2020 – 2022 BBSRC (£180k), 'A Transformative Technology Platform for Interrogating Airborne Adaptation of Respiratory Pathogens'. PI: JPR. Co-investigators: Prof. Adam Finn and Dr. Darryl Hill (Cellular and Molecular Medicine).

2019 – 2022 DSTL and US DOD (£235k), 'Development of Controlled Electrodynamic Levitation and Extraction of Bio-Aerosol onto a Substrate (CELES)' . PI: JPR.

2017 – 2018 Chiesi Farmaceutici (£120,000), 'Inhalation Aerosol and Response to Humidity'. PI: JPR.

2016 – 2018	Marie Sklodowska-Curie action (£195,445, Independent Research Fellowship: 700843), 'Assessing the aerosol radiative impact employing advanced methods to reduce uncertainties in the aerosol optical properties'. PI: JPR, Fellow: Dr. Antonio Valenzuela Gutierrez.
2016 – 2020	EPSRC (£2,270,296, EP/N025245/1), 'Evaporative Drying of Droplets and the Formation of Micro-structured and Functional Particles and Films'. PI: Prof. Colin Bain (Durham). Co-investigators: JPR and Prof. Andrew Bayly (University of Leeds). Project partners: AKZO Nobel, Bristol-Myers Squibb Pharm Research UK, Centre for Process Innovation Limited, Chiesi Farmaceutici, Croda (Group), Danone Nutricia, Hovione (International), Inca Digital Printers Ltd, Kuecept Ltd, Merck & Co Inc (MSD), Nestle SA, Procter & Gamble, Sun Chemical and Syngenta (added value of industry club ~£500k cash over 4 years).
2016 – 2017	NERC (£49.896, NE/N006801/1) 'Improved Representation of Atmospheric Aerosol Hygroscopicity'. PI: JPR. Co-investigators: Prof. Simon Clegg (UEA) and Prof. Markus Petters (North Carolina State University).
2016 – 2017	NERC (£142,156, NE/N013700/1) 'International network for coordinating work on the physicochemical properties of molecules and mixtures important for atmospheric particulate matter'. PI: JPR. Co-investigator: Dr. D. Topping (School of Earth, Atmospheric and Environmental Sciences, University of Manchester).
2016	Steer Energy (£40,144) 'Aerosols as sealants for gas leaks'. PI: JPR.
2014 – 2018	NERC (£293,218, NE/M004600/1) 'Diffusion and Equilibration in Viscous Atmospheric Aerosol'. PI: JPR. Co-investigators: Dr. D. Topping (School of Earth, Atmospheric and Environmental Sciences, University of Manchester) and Dr. J. Hamilton (School of Chemistry, University of York).
2014 – 2017	EPSRC (£333,338, EP/L010569/1) 'New Frontiers in Aerosol Particle Measurements'. PI: JPR. Co-investigators: Dr. C.P. Royall (School of Physics, University of Bristol).
2014 – 2018	NERC (£341,295, NE/L006901/1) 'Reducing the Uncertainties in Aerosol Hygroscopic Growth'. PI: JPR. Co-investigators: Prof. S.L. Clegg (Environmental Sciences, UEA).
2014 – 2017	DSTL Contract (£126,557) 'Optical Manipulation and Characterisation of Aerosols' PI: JPR.
2012 – 2016	EPSRC (£96,728, funded through University of Bristol award). 'A Prototype Aerosol Optical Tweezers Instrument', PI: JPR. (A EPSRC Impact Acceleration Award to build a prototype commercial instrument with Biral Inc.).
2012 – 2016	NERC (£67,596, NE/J01754X/1) 'A Prototype Optical Instrument for the Analysis of Single Aerosol Particles', PI: JPR. Co-investigator: Prof. A.J. Orr-Ewing (School of Chemistry, University of Bristol). (A NERC-RSC Analytical Trust Fund Postgraduate Studentship).
2011 – 2014	NERC (£249,044, NE/I020075/1) 'Aerosol-Cloud Interactions - A Directed Programme to Reduce Uncertainty in Forcing through a Targeted Laboratory and Modelling Programme', PI: JPR. (Bristol component of consortium, with lead organisation U. of Manchester).
2010 – 2012	NERC (£305,724, NE/H001972/1, Technology Proof of Concept Programme) 'A Novel Instrument for Characterising the Properties and Processes of Single Accumulation Mode Aerosol Particles', PI: JPR. Co-investigator: Prof. A.J. Orr-Ewing (School of Chemistry, University of Bristol).
2009 – 2014	EPSRC (£1,891,066, EP/G007713/1, Leadership Fellowship) 'New Strategies for Sampling, Analysing and Understanding Aerosols'. PI: JPR. Co-investigators: Dr. A. Hudson and Prof. A.J. Orr-Ewing (School of Chemistry, University of Bristol),

	Prof. S.L. Clegg (Environmental Sciences, UEA) and Dr. D. McGloin (Electronic Engineering and Physics, University of Dundee).
2007 – 2011	EPSRC (£503,208 fec) 'Characterisation of the Properties and Dynamics of Single Microparticles'. PI: JPR. Co-investigators: Dr. A. Hudson (School of Chemistry, University of Bristol) and Dr. D. McGloin (Electronic Engineering and Physics, University of Dundee).
2006 – 2009	NERC (£294,263 fec) 'Formation Pathways and Properties of Organic Aerosols'. PI: JPR. Co-investigators: Dr. A. Cox (School of Chemistry, University of Cambridge), Dr. S. Clegg (School of Environmental Sciences, UEA) and Dr. G. McFiggans (School of Earth, Atmospheric and Environmental Sciences, University of Manchester).
2005 – 2008	EPSRC (£132,596) 'Optically Controlled Digital Microfluidics: Chemistry in Aerosol and Surface-Microdroplet Arrays'. PI: JPR. Co-investigators: Dr. D. McGloin and Dr. M. Buck (Schools of Physics and Chemistry, University of St. Andrews).
2005 – 2008	NERC (£298,338) 'Characterising the Optical Properties of Scattering and Absorbing Aerosol Particles'. PI: JPR. Co-investigators: Prof. A.J. Orr-Ewing and Dr. D.E. Shallcross (School of Chemistry, University of Bristol).
2005 – 2009	EU Marie Curie Early Stage Training Grant *BREATHE* (Co-investigator). PI: Prof. D.E. Shallcross. Co-investigators: Prof. A.J. Orr-Ewing, Dr. J.N. Harvey, Prof. M.N.R. Ashfold, *JPR*, Prof. G.G. Balint-Kurti and Dr. S. O'Doherty
2004 – 2009	EPSRC Advanced Research Fellowship (£195,908) 'Fundamental Studies of Heterogeneous Chemical Dynamics at the Liquid-Gas Interface of Aerosols'. PI: JPR.
2004 – 2007	EPSRC Advanced Research Fellowship tied grant (£230,274) 'Fundamental Studies of Heterogeneous Chemical Dynamics at the Liquid-Gas Interface of Aerosol Particles'. PI: JPR.
2004 – 2007	RSC/EPSRC Analytical PhD Studentship (~£53,000) 'A New Analytical Instrument for Single Particle Sampling and Characterisation'. PI: JPR. Co-investigator: Dr. D. McGloin (School of Physics, University of St. Andrews).
2002 – 2005	NERC Core Measurements in Atmospheric Science (£157,697) 'Laboratory Studies of the Dynamics of Aerosol Droplets'. PI: JPR.
2002 – 2005	EPSRC JREI (£140,564) 'A Widely Tunable Pulsed Laser Source for Research in Chemical Physics'. PI: Prof. I.R. Sims. Co-investigator: Prof. R.P. Tuckett, *JPR*.
2001 – 2005	EPSRC Analytical Techniques for Atmospheric Chemistry (£290,118) 'Investigations of Atmospheric Aerosol Chemistry: Developing a New Analytical Tool for Probing Microparticles'. PI: JPR. Co-investigator: Dr. J. Baker (School of Geography, Environmental Health and Risk Management, University of Birmingham)
2001 – 2002	Royal Society Research Grant (£9,977) 'A New Method for Aerosol Analysis'. PI: JPR.
2000 – 2003	EPSRC Fast Stream (£59,995) 'Chemical Dynamics Near the Liquid-Gas Interface: Proton Transfer Probed by Non-Linear Optical Techniques'. PI: JPR.

Indicators of External Recognition

Examination of PhD Degrees: Internal Examiner

At the School of Chemistry, University of Bristol and School of Chemistry, University of Birmingham: E. Creed (2018); S. Finlayson (2016); G. Pilkington (2015); J. Tongkhundam (2015); M. Kingston (2015); I. Williams (2014); J. Rowe (2011); R. Grilli (2010); R. Kemp (2009); P. Fiadzomor (2008); M. Pradhan (2008); D. Carty (2003); R. Chin (2003); P. Barnes (2002).

Examination of PhD Degrees: External Examiner

- C. Mellor (University of Oxford, 2005).
- C. L. Badger (University of Cambridge, 2006).
- M. Allan (Heriot-Watt University, 2007).
- A. Symington (University of Cambridge 2009)
- T.C. Preston (University of British Columbia, Canada, 2011)
- P. Ashok (University of St. Andrews, 2011)
- T. Wilson (University of Leeds, 2012)
- M. Goldstone (University of Hertfordshire, 2013)
- D. Lienhard (ETH-Zurich, Switzerland, 2013)
- S. Henin (University of Geneva, Switzerland, 2013)
- P. Matthews (University of Leeds, 2014)
- G. Rovelli (University of Milan Bicocca, Italy, 2016)
- M. Casati (University of Milan Bicocca, Italy, 2016)
- N. Marsden (University of Manchester, 2017)
- A. Pajunoja (University of Eastern Finland, 2017)
- N. Mason-Smith (Monash University, Australia, 2018)
- S. Niazi (Queensland University of Technology, 2021)

Invited Lectures at International Conferences

- Gordon Conference on Molecular and Ionic Clusters, Italy (2026)
- Nobel Symposium From Molecules to Climate: A Fundamental Understanding of Chemistry in Earth's Atmosphere (Sweden, 2026)
- Microbiological Society Bioaerosol Conference (UK, 2024)
- Inhalation and Respiratory Drug Delivery Congress, London (2024)
- Sixth Workshop on Molecular Understanding of Atmospheric Aerosols, Corsica, France (2024)
- Drug Delivery to the Lungs, Edinburgh (2024)
- Nordic Symposium on Infection Control (Sweden, 2023)
- International Global Atmospheric Chemistry conference (UK, 2022)
- Fifth Workshop on Molecular Understanding of Atmospheric Aerosols, Lake Arrowhead, USA (2022)
- Federation of Infection Societies Annual meeting hosted by the British Infection Association, Webinar (2021)
- UK Fluids Network, Webinar (2020)
- Gordon Research Conference on Atmospheric Chemistry, USA (2019)
- SimInhale European COST Action, Greece (2019)
- Drug Delivery to the Lungs, Edinburgh (2019)
- Gordon Research Conference on Molecular Interactions and Dynamics, USA (2018)
- Pittcon, Orlando, USA (2018)
- Respiratory Drug Delivery conference, Arizona, USA (2018)
- Fourth Workshop on Molecular Understanding of Atmospheric Aerosols, Germany (2018)
- International Pharmaceutical Aerosol Consortium on Regulation and Science (IPAC-RS) Board Meeting, Italy (2018)
- XXIst Symposium on Atomic, Cluster and Surface Physics 2018, Obergurgl, Austria (2018)
- American Chemical Society, Fall Meeting, Washington, USA (2017)
- CECAM Workshop on Nucleation and Crystallisation, EPFL, Lausanne, Switzerland (2017)
- Drug Delivery to the Lungs, Edinburgh (2017)
- Electromagnetic Light Scattering Conference, Washington (2017)
- Faraday Discussion, Chemistry of the Anthropocene, University of York (2017)
- Inhalation and Respiratory Drug Delivery Congress, London (2017)
- Future of Chemical Physics, Organised by the American Institute of Physics, Oxford (2016)
- Inhalation and Respiratory Drug Delivery Congress, London (2016)
- UK Particle Technology Conference, University of Surrey (2016)
- Joint Royal Society of Chemistry and Chemical Society of Japan Symposium, Tokyo, Japan (2015)
- Atmospheric aerosols symposium at Pacifichem, Hawaii, USA (2015)

- Cavity Enhanced Spectroscopy Conference, NIST, Boulder, Colorado (2015)
- American Chemical Society, Spring Meeting, San Diego, USA (2015)
- Second workshop on Molecular Understanding of Atmospheric Aerosols, Ascona, Switzerland (2014)
- Plenary Lecture, American Association of Aerosol Research, Portland, Oregon, USA (2013)
- Berkeley Atmospheric Science Center Symposium (2013)
- Lasers in Weather Control, World Meteorological Office, Geneva (2013)
- American Chemical Society, Fall Meeting, Philadelphia, USA (2012)
- Aerosol Society Plenary Talk, Bristol (2012)
- American Geophysical Union, San Francisco, USA (2012)
- First workshop on Molecular Understanding of Atmospheric Aerosols, University of British Columbia, Canada (2012)
- American Chemical Society, Fall Meeting, Denver, USA (2011)
- Bunsentagung, General Assembly of the German Bunsen Society for Physical Chemistry, Berlin, Germany (2011)
- SPIE, Symposium on Optical Trapping and Optical Manipulation, San Diego, USA (2011)
- Royal Meteorological Society Topical Meeting, Leeds (2010)
- SAOT, Erlangen Graduate School in Advance Optical Technologies, Germany (2010)
- American Chemical Society, Fall Meeting, Boston, USA (2010)
- Symposium on Novel Optical Trapping and Micromanipulation Techniques, Spring Optics and Photonics Congress, Optical Society of America, Vancouver, USA (2009)
- Symposium on Optical Trapping & Optical Micromanipulation, SPIE, San Diego, USA (2008).
- Gordon Conference on Molecular and Ionic Clusters, Aussois, France (2008)
- 11th International Conference on Electromagnetic Light Scattering, University of Hertfordshire, UK (2008)
- Symposium on Novel Optical Trapping and Micromanipulation Techniques, Optical Society of America, Rochester, New York, USA (2008)
- 22nd International Symposium on Molecular Beams, Freiburg, Germany (2007)
- Faraday Discussion 137 on the Spectroscopy and Dynamics of Microparticles, Bristol, UK (2007)
- Symposium on Problems in Atmospheric Chemistry, Spring ACS Meeting in Atlanta, Georgia, USA (2006)
- 19th International Symposium on Gas Kinetics, CNRS, Orleans, France (2006)
- Symposium on Physics and Chemistry of the Atmosphere, Spring APS Meeting, Montreal, Canada (2004)

<u>Invited Lectures at National and Overseas Institutions</u>

- Department of Chemistry, University College London (2023)
- Department of Chemistry University of California, Berkeley, USA (2023)
- School of Life Sciences, University of Bath (2023)
- Physical and Theoretical Chemistry, University of Oxford (2022)
- School of Chemistry, University of Leeds (2022)
- School of Chemistry, University of Newcastle (2022)
- Engineering, University of Hertfordshire (2022)
- School of Chemistry, Imperial College London (undergraduate seminar, 2022)
- Department of Chemistry, Symposium on Physical Chemistry, Caltech (2021, webinar)
- Joint Chemistry and Environmental Science, Harvard University (2021, webinar)
- NOAA, Boulder, Colorado (2021, webinar)
- Department of Chemistry, University of Purdue (2021, webinar)
- Department of Chemistry and CIRES, University of Colorado (2020, webinar)
- Caltech (2020)
- Department of Chemistry, University of California-Irvine (2020)
- Department of Chemistry, University of California-Riverside (2020)
- Department of Chemistry, University of California-San Diego (2020)
- School of Chemistry, University of Leeds (2017)
- School of Chemistry, University of Durham (2017)

- Engineering, University of Alberta, Canada (2016)
- School of Chemistry, University of Warwick (2016)
- Beijing Institute of Technology, China (2015)
- School of Chemistry, University of Cambridge (2015)
- Earth and Environmental Science, University of Manchester (2015)
- Corday Morgan Medal Lecture, Cardiff University (2014)
- Corday Morgan Medal Lecture, Leeds University (2014)
- Corday Morgan Medal Lecture, Oxford University (2014)
- Harvard University, Boston, USA (2014)
- Environmental Science, MIT, Boston, USA (2014)
- Department of Chemistry, University of Wisconsin, USA (2014)
- Environmental Science, Carnegie Mellon University, Pittsburgh, USA (2014)
- Department of Chemistry University of California, Berkeley, USA (2013)
- Department of Chemistry, University of California, San Diego, USA (2013)
- Department of Chemistry, University of California, Irvine, USA (2013)
- School of Chemistry, University of Durham (2013)
- School of Chemistry, University of Kyoto, Japan (2013)
- School of Chemistry, Nagoya University, Japan (2013)
- School of Chemistry, University of York (2013)
- School of Chemistry, Beijing Institute of Technology, China (2012)
- Department of Chemistry, University of Indiana, USA (2012)
- Karlsrhue Institute of Technology, Germany (2012)
- School of Chemistry, University of Warwick (2012)
- ETH-Zurich, Institute for Atmospheric and Climate Sciences, Switzerland (2011)
- PSI, Zurich, Switzerland (2011)
- School of Chemistry, University of Glasgow (2011)
- School of Pharmacy, Kings College London (2011)
- Department of Chemistry, University of British Columbia (2011)
- School of Chemistry, University College London (2011)
- University of Bristol, School of Physics (2011)
- Department of Chemistry and CIRES, University of Colorado, USA (2010)
- NOAA, Boulder, Colorado (2010)
- School of Chemistry, University of Cambridge (2009)
- ETH-Zurich, Institute for Atmospheric and Climate Sciences, Switzerland (2009)
- ETH-Zurich, Department of Chemistry, Switzerland (2009)
- Hong Kong University of Science and Technology, Hong Kong (2009)
- Beijing Institute of Technology, China (2009)
- University of California (Berkeley) (2008)
- School of Chemistry, University of Nottingham (2007)
- School of Chemistry, University College London (2007)
- School of Chemistry, University of Cardiff, RSC South East Wales, Local Section Meeting (2007)
- School of Chemistry, University of Leicester (2007)
- Institute of Applied Physics, Darmstadt University of Technology, Germany (2007)
- Department of Chemistry, University of Toronto, Canada (2006)
- Department of Chemistry, University of California (Berkeley) (2005)
- Physical and Theoretical Chemistry, University of Oxford (2005)
- School of Chemistry, University of Surrey (2005)
- School of Chemistry, University of Glasgow (2004)
- School of Chemistry, University College Cork (2004)
- School of Chemistry, University of Sussex (2004)
- Environmental Science, University of East Anglia (2004).
- Institute for Low Temperature Plasma Physics, Greifswald, Germany (2004)
- RSC Local Section meeting, Heriot-Watt University, Edinburgh (2004).
- DSTL, Porton Down (2004)

- School of Chemistry, University of Manchester (2003)
- School of Chemistry, University of Exeter (2003)
- School of Chemistry, University of Edinburgh (2003)
- School of Physics, University of St. Andrew's (2003)
- Physical and Theoretical Chemistry, University of Oxford (2002).
- School of Chemistry, University of Leeds (2002)
- School of Chemistry, University of Bristol (2002)
- School of Chemistry, University of Cambridge (2002)

Contributed Lectures in National and International Conferences

I have contributed over 65 talks at national and international conferences (2002-2026), including at the American Chemical Society, the American Physical Society, the American Association of Aerosol Research, the UK and Ireland Aerosol Society, the European Aerosols Conference, the Annual meeting of the Royal Meteorological Society, the International Symposium on Gas Kinetics, Lasers in Weather Control, Drug Delivery to the Lungs, and the Congress of the European Geosciences Union

Related Administration

Managing People

Current research group members:

- Dr. Rachael Miles (CDT course manager, 2019 – present; post-doctoral researcher, 2009 – 2019; PhD 2005-2009)
- Dr. Allen Haddrell (Research Fellow, 2009 – present)
- Dr. Jim Walker (Research Fellow, 2009 – present
- Kennedy Peek (PhD student, 2022 – present)*
- Sorrel Haughton (PhD student, 2022 – present)
- Simon Bate (PhD student, 2022 – present)*
- Ruaridh Davidson (PhD student, 2023 – present)*
- Anna Catton (PhD student, 2023 – present)
- Charlotte Reston (PhD student, 2023 – present)
- Xia Yi (PhD student, 2023 – present)*
- Nan Zhou (PhD student, 2023 – present)
- Fraser Crawford (PhD student, 2023 – present)*
- Ajay Potavadoo (PhD student, 2024 – present)
- Patricia Barkoci (PhD student, 2024 – present)
- Charlotte Cox (PhD student, 2025 – present)
- Liam Leonard (PhD student, 2025 – present)*

Completed post-doctoral researchers (see full list of graduated PhD students under *Teaching and Related Administration*):

- Dr. Lukesh Kumar Mahato (2023-2026)
- Dr. Mara Otero-Fernandez (2021-2022)
- Dr. Alicja Szczepanska (2021-2023)
- Dr. Neha Yadav (2021)
- Dr. Victoria Hamilton (2021)
- Dr. Sadiyah Sheikh (2021)
- Dr. Henry Symons (2021)
- Dr. Chu Feng Hong (2019)
- Dr. Florence Gregson (2020 – 2021)
- Dr. Justice Archer (2018 – 2022)
- Dr. Antonio Valenzuela Gutierrez (2016 – 2019)
- Dr. Grazia Rovelli (post-doctoral researcher, 2016 – 2018)
- Dr. Yong-Yang Su (2016)
- Dr. Charlotte Beddoes (2015 – 2016)
- Dr. Su Yongyang (2016)
- Dr. Rory Power (2015)

- Dr. Bryan Bzdek (2014 – 2017)
- Dr. Jim Walker (2014 – 2020, partially employed by Biral during this time)
- Dr. David Stewart (2012 – 2014)
- Dr. Thomas Preston (NSERC Fellow, Canada, 2012 – 2014)
- Dr. Stephen Simpson (2012 – 2013)
- Dr. Toni Carruthers (2009 – 2013)
- Dr. David Bones (2010 – 2012)
- Dr. Kerry Knox (2010)
- Dr. Nana Kwamena (NSERC Fellow, Canada, 2008 – 2010)
- Dr. Jon Wills (2007 – 2010)
- Dr. Svemir Rudic (2005 – 2008)
- Dr. Laura Mitchem (2004 – 2008)
- Dr. Chris Howle (2004 – 2005)
- Dr. Robert Sayer (2001 – 2004)

Active Collaborators with other Principal Investigators *Leading to Publications or Funding in Last 5 Years*:
JPR has collaborated with researchers in the physical, life, medical and environmental sciences, and engineering. Collaborations leading to publications since 2020 include PIs below by discipline:

Physical	S. Armes (Sheffield), M. Cotterell (Oxford), F. Houle (Lawrence Berkeley National Lab, US), A. Orr-Ewing (Bristol), P. Royall (CNRS, France), R. Sear (Surrey), M. Shiraiwa (UC-Irvine, US)
Life	P. Dabisch (US Department of Homeland Security), T. Cogan, A. Davidson, D. Hill & J. Mann (Bristol), B. Forbes (King's College London), J. Lednicky (Florida, US), J. Löndahl (Lund, Sweden), D. Murnane (Hertfordshire), S. Ratnesar-Shumatea (EPA, US), J. Ruiz (Chiesi, Italy), S. Sriskandan (Imperial), R. Thomas (DSTL),
Environmental	S. Clegg (East Anglia), U. Krieger (ETH-Zurich, Switzerland), P. Lemaitre (French Authority for Nuclear Safety and Radiation Protection, ASNR), N. Prissle (Oulu, Finland), B. Turpin (North Carolina, US), D. Topping (Manchester)
Medical	J. Calder, P. Shah & G. Donaldson (Imperial), R. Epstein (Royal National Ear, Nose and Throat, UCL), A. Finn, A. Pickering & N. Maskell (Bristol), J. Santarpia (Nebraska Medical Center, US), L. Lovat (UCL)
Engineering	C. Dutcher (Minnesota, US), A. Ferro (Clarkson, US), Y. Hardalupas & M. Stettler (Imperial), R. Vehring and W. Finlay (Alberta, Canada).

Managing Centre for Doctoral Training
See description under section 7.

7. Teaching and Related Administration

I summarise below my undergraduate and postgraduate teaching activities over the last ten years. I have developed and delivered: Level 1 courses in thermodynamics, kinetics, an introduction to quantum mechanics, and spectroscopy; a Level 2 course on liquid interfaces; and a Level 4 course on aerosols. I have also developed laboratory experiments for Level 2 and 3 laboratories and delivered small group tutorials and workshops. Following the award of the Centre for Doctoral Training in 2019, I have received relief from undergraduate teaching to focus my activities on post-graduate training. As the Programme Director, I had responsibility for developing the unit structure and new postgraduate courses in Aerosol Science, Professionalism and Translation, and Research Methods (2019-2024). I have supervised 38 postgraduate students through to completion of their PhDs, a further 3 as co-supervisor and am supervising a further 8 current students and 5 as co-supervisor.

Undergraduate Teaching (Summary of last 10 years of activity only)

- *Level 1 Molecules and Reactions* (8 lectures on chemical thermodynamics and kinetics, 2006 – 2019) for Level 1 undergraduate students (~200 students). Development and delivery of a course on chemical thermodynamics and kinetics from a molecular perspective, starting from configurations, multiplicities and entropy. Assessment was by examination for which I set and marked one question each year for the Level 1 exam paper. This is supported by two 1 hour small-group tutorials delivered by academics in the physical section. I have provided the worksheet and answer guide used

by tutors. A pre-tutorial multiple choice online quiz for the students was developed for students to assess their learning.

- *Level 1 Molecules and Reactions* (6 lectures on quantum mechanics and spectroscopy, 2013 – 2017) for Level 1 undergraduate students (~200 students). In addition to the lectures on thermodynamics and kinetics, I took over an additional 6 lectures introducing Level 1 students to the principles of quantum mechanics and spectroscopy. Assessment was by examination for which I set and marked one question each year for the Level 1 exam paper. This is supported by two 1 hour small-group tutorials delivered by academics in the physical section. I have provided the worksheet and answer guide used by tutors. A pre-tutorial multiple choice online quiz for the students was developed for students to assess their learning.
- *Level 1 small tutorial groups* (through to 2019). I acted as a Level 1 tutor delivering a 1-hour tutorial every other week (group size 3-4 students, 12 contact hours per year) in support of the Level 1 lectures in physical chemistry.
- *Level 2 Laboratory Practical* (2013 – 2019). I developed a laboratory practical to measure the kinetics of uptake of gas phase acetic acid at a liquid water surface use absorption spectroscopy with a red laser and a pH sensitive dye. Duties included marking ~24 reports by students each year.
- *Level 3 Laboratory Practical* (2015 – 2019). I developed a 2-day laboratory practical on the topic of atmospheric aerosols in which students measure aerosol concentrations around the University precinct with an optical particle sizer and condensation particle counter. The students work in a team of 4 to design the sequence of measurements they wish to complete with the objective of identifying significant sources of aerosols. Duties included marking ~24 reports by students each year.
- *Level 4 Special Physical and Theoretical Chemistry* (6 lectures on aerosols, 2012-2019) for Level 4 undergraduate students (~50 students). This required course development and delivery, and provision of problems sheet for one workshop. Assessment was by examination for which I set and marked one question each year for the Level 4 exam paper. This course was also made accessible to postgraduate students in the School of Chemistry as a component of their training and was attended by ~5 postgraduate students each year.
- *Final Year Research Projects.* Students in the final year (Level 3 BSc and Level 4 MSc) undertake a substantive research project, accounting for 30 or 40 credit points of the final year mark for Level 3 and 4, respectively. Level 3 projects require ~18 hours of student commitment each week over an eighteen week period; Level 4 projects require ~26 hours of student commitment each week over a twenty week period. Assessment is through submission of a final report, an oral or poster presentation and through continual assessment during the project. I typically supervise 2-3 students each year. Although the students are supervised daily by postgraduate or postdoctoral researchers in my research group, direct supervision requires a contact time of between ½ and one hour each week. Further, in addition to assessing project students in my group, I act as a second assessor for ~5 further students from other research groups each year.

Postgraduate Teaching: Programme Development

I have led the development and coordinated the following Postgraduate taught Units as Programme Director for the Centre for Doctoral Training in Aerosol Science.

- *Core Aerosol Science 1 and 2.* These two Units (30 Credit Points each delivered in teaching blocks 1 and 2, 2019 – present) form the core mandatory training in the physical science underpinning aerosols and are delivered to students enrolled in the EPSRC Centre for Doctoral Training in Aerosol Science (15-20 students in each cohort). Topics across the two Units include: the formation of new particles and nucleation; aerosol mechanics and statistics; droplet condensation/evaporation; particle sources; sprays; aerosol deposition; coalescence and adhesion; sampling; filtration; analysis techniques; optical properties; electrical properties; aerosol thermodynamics; chemical composition; chemical reactions; and biological aerosols. The syllabus for each Unit is taught in eight 2-day short courses delivered by academics drawn from across the 7 partnering institutions, industry partners and researchers in the public and governmental sectors. Each topic is taught using research-based instructional strategies, with students accessing training materials (mini-lectures, worked problems, multiple-choice questions) through an on-line portal for self-study before the 2-day intensive delivered by Team-Based Learning in which multidisciplinary groups of students work on extended application exercises. Assessment is continuous using a "two-stage" problem-based on-line test involving an individual (1 hour) followed by team-based (30 minute) assessment, which I jointly deliver with the CDT Course Manager.

- *Research Methods.* This Unit (30 Credit Points delivered across teaching blocks 1 and 2) provides training in research methodology and skills, programming and data analysis, and advanced computational skills, with an emphasis on training relevant to aerosol science, and is delivered to students enrolled in the EPSRC Centre for Doctoral Training in Aerosol Science (15-20 students in each cohort). A course on *Skills for Interdisciplinary Research* explores the foundations for interdisciplinary research, understanding the nature of interdisciplinary research and developing the skills needed for interdisciplinarity. Students receive training in *Programming and Data Analysis* (from an introduction to software engineering through to programming) and *Advanced Computational Tools for Aerosols* (including creation and application of aerosol models, combined with analysis of datasets derived from exemplar instrumentation). Finally, students participate in a weekly PhD Project Development session, working with the whole CDT cohort to develop their own research proposals, and develop problem solving and leadership skills. Assessment is through submission by each of student of a 10-page research proposal, assessed by the Director and Course Manager.
- *Professionalism and Translation.* This Unit (30 Credit points delivered across teaching blocks 1 and 2) provides important support to the core units delivering the fundamental training in aerosol science, broadening the competencies of CDT graduates to enable them to act professionally and to lead in the translation of research into new technologies and products. Training in responsible innovation (RI) is provided exploring the origins, meaning and translation of RI into practice. The training encourages reflection on the implications for the researchers own scientific field, and covers the design of research/innovation processes in accordance with RI principles. Training in Public Engagement (PE) covers: what PE is and why it is important, the types of audiences encountered, the range of activities/approaches used, necessary communication skills for effective PE and routes to evaluating impact. Training in issues surrounding equality, diversity and inclusion (ED&I) considers the current issues faced in ED&I, routes to improving ED&I and ethical behaviour in the workplace. A course on policy impact examines the policy/regulatory landscape, the tools for identifying and influencing policy audiences, communications, and scientific careers within government/policy. Finally, students participate in the assessment event "Dragon's Den: Developing a Business Plan", work in an interdisciplinary team to prepare a technology or service development plan for challenge topics identified by partners. This is supported by training in project management, market analysis and regulation, and teams work to develop their business concept.
- *Thematic Broadening Sabbatical.* This Unit (60 Credit points delivered months in 8-11 of Year 1 student training) allows students to reinforce their formal training in TBs 1 and 2 by using many of the concepts and skills they have gained into practice. This short research project is in an area of aerosol science complementary to the student's final PhD project. The Thematic Broadening Sabbatical is hosted by an academic co-supervisor who may be based either at the same institution hosting the final PhD or any one of the other partnering academic institutions. The student prepares a final written report on the outcomes of their project.

Postgraduate Teaching: Programme Delivery

As Director of the CDT, I deliver the following elements of the training and assessment:

- *Core Aerosol Science 1 and 2.* Of the 16 topics forming these two 30 Credit Point courses, I deliver training in 4 topics, specifically: aerosol particle size distributions; aerosol phase and thermodynamics; particle coalescence and adhesion; and aerosol evaporation and condensation (see https://www.aerosol-cdt.ac.uk/training/ for details).
- *Research Methods.* I jointly assess the project proposals submitted by the students with the CDT Course Manager.
- *Professionalism and Translation.* I deliver 2 training sessions (3 hours each) on responsible innovation.

Contribution to Continuing Education or CPD courses (Summary of last 10 years of activity only)

2014 – 2017 *Bristol Spring School in Colloid Science:* I actively supported the delivery of the Bristol Spring School in Colloid Science, latterly operated by Formumetrics and formerly by the Bristol Colloid Centre. I contributed one lecture on aerosols to a group of ~30 attendees from industry and the public sector each year through to the conclusion of the course in 2017.

2011 – 2016 *Aerosol Society Training Courses:* I held the role of Education Secretary of the Aerosol Society, with responsibility for: assessing applications by early career researchers for travel bursaries and the award of travel support to attend conferences; assessing applications for C N Davies Scholarships and small research applications (£10,000 upper limit) to support postgraduates undertaking research in aerosol science; coordinating and teaching on the annual *Fundamentals of Aerosol Science* CPD course that attracts ~50 attendees from academia, industry and the public sector.

2019 – present *Students Aligned to the Centre for Doctoral Training and Industrial Partners CPD:* I have led the extension of all of our CDT courses to a broader range of postgraduate students from around the world and to industrial partners. ~150 students have registered access to our training portal and ~300 employees of our industrial partners with some employers (e.g. DSTL, Nanopharm) including access to our training courses as part of their internal CPD programmes. I have led the development and delivered in-person training intensives to partner employees, particularly a 1-week residential training course on the *Fundamentals of Aerosol Science*.

Indicators of External Recognition

2021 – 2025 External examiner for the undergraduate chemistry taught programmes in the School of Chemistry & Environmental Research Institute, University College Cork

Postgraduate Research Students

Completed PhD students as main supervisor (38):

- Barnaby Miles 2021–2025
- Jianghan Tian 2020-2024
- Lance Jiang 2020-2025
- Edward Neal 2020-2024
- Thomas Hilditch 2019-2023
- Lauren McCarthy 2019-2023
- Daniel Hardy 2018-2022
- Henry Oswin 2018-2022
- Malcolm Kittle 2017-2021
- Natalie Armstrong Green 2017-2021
- Flo Gregson 2016-2020
- Mara Otero Fernandez 2016-2021
- Lilly Manzoni (MRes) 2016-2017
- Stephen Ingram 2015-2019
- Aleks Marsh 2014-2018
- Rose Willoughby 2014-2018
- Song Young 2013-2018
- Frances Marshall 2012-2016
- Michael Cotterell 2012-2016
- Andrew Rickards 2011-2015
- Bernie Mason 2011-2014
- Rory Power 2010-2014
- James Davies 2010-2014
- Ben Dennis-Smither 2009-2013
- Jim Walker 2009-2013
- Graham Hargreaves 2007-2011
- Kate Hanford 2006-2010
- Adele Laurain 2006-2010
- Kerry Knox 2005-2010
- Jason Butler 2005-2009
- Rachael Miles 2005-2009
- Helena Meresman 2004-2009

- Chris Homer 2004-2009
- Jariya Buajarern 2004-2007
- Rachael Symes 2002-2005
- Rebecca Hopkins 2002-2005
- Richard Gilham 2002-2005
- Robert Gatherer 2000-2003

Completed PhD students as co-supervisor for overseas students (3, year of time in Bristol indicated):

- Hongze Lin (2016, Hangzhou University of Science and Technology)
- Chen Cai (2012-2014, Beijing Institute of Technology, CSC Scholarship)
- Hai Jie Tong (2009-2010, Beijing Institute of Technology, CSC Scholarship)

Current research group graduate students (8, * indicates co-supervised):

- Kennedy Peek (PhD student, 2022 – present)*
- Sorrel Haughton (PhD student, 2022 – present)
- Simon Bate (PhD student, 2022 – present)*
- Ruaridh Davidson (PhD student, 2023 – present)*
- Anna Catton (PhD student, 2023 – present)
- Charlotte Reston (PhD student, 2023 – present)
- Xia Yi (PhD student, 2023 – present)*
- Nan Zhou (PhD student, 2023 – present)
- Fraser Crawford (PhD student, 2023 – present)*
- Ajay Potavadoo (PhD student, 2024 – present)
- Patricia Barkoci (PhD student, 2024 – present)
- Charlotte Cox (PhD student, 2025 – present)
- Liam Leonard (PhD student, 2025 – present)*

8. Academic Leadership and Citizenship

With aerosol transmission of COVID-19 playing such a significant role, I have undertaken government advisory roles, led multidisciplinary teams of researchers to understand the risks of airborne transmission, contributed to the *Royal Institution Christmas Lectures* and engaged with the media to provide explanations and communicate risks of transmission. More broadly, I have provided academic leadership from conception to delivery of the EPSRC *Centre for Doctoral Training in Aerosol Science*. I served as a committee member through to becoming President of the *UK and Ireland Aerosol Society* and I am the current Editor-in-Chief of the journal of the American Association for Aerosol research, *Aerosol Science and Technology*. I have established a series of international workshops on atmospheric aerosols and chaired or contributed to the organisation of a number of other conferences including two Faraday Discussions. I have worked with partners to commercialise two aerosol instruments and delivered research contracts for industrial partners and I have served on independent advisory boards, including as Chair of the Biodetection Technology Hub. Since 2023, I have served as the Head of the Physical and Theoretical Chemistry section in the School of Chemistry, University of Bristol, with responsibility for line managing ~25 Pathway 1-3 academic staff.

Academic Leadership in the Discipline

Government and Academic Advisory Roles

2026 – present	Chair of the Advisory Board for the Biodetection Technology Hub (Universities of Hertfordshire, Cranfield, Leeds, Manchester) funded by Research England (£13.1M).
2023 – present	1.2 GHz NMR oversight board, EPSRC's UK high-field solid state NMR facility.
2020 – 2021	Member of UK Government Department of Environment, Food and Rural Affairs Expert Group on the Transmission of SARS-CoV-2 in the Wider Environment (risks of transmission in air, water & sewage, surfaces, foods).
2020 – 2021	Member of UK Government Department of Digital, Culture, Media and Sport and Public Health England Advisory Group on Singing and Wind Instruments (risks of transmission from singing and playing wind instruments during the pandemic).

2020 – 2021 Member of NIHR Aerosol Generating Procedures Task and Finish Group (reviewing the risks of aerosol transmission of SARS-CoV-2 by various clinical procedures).

COVID-19 Response: Scientific Communication and Academic Leadership

2021 Royal Institution Christmas Lecture. I contributed an experimental demonstration of the aerosol generated when breathing and speaking to Lecture 2, "The Perfect Storm", hosted by Pro. Cath Noakes and Prof. Jonathan Van-Tam.

2020 – 2022 UKRI COVID-19 Urgency projects. I have led numerous multidisciplinary projects, specifically: the PERFORM project (Investigation of Particulate Respiratory Matter to Inform Guidance for Safe Distancing of Performers in a COVID-19 Pandemic); the aerosol component of the AERATOR project (AERosolisation And Transmission Of SARS-CoV-2 in Healthcare Settings); and a project to measure the airborne survival of the SARS-CoV-2 virus. These projects have been reported frequently in the national and international media.[1]

2020 – 2022 I have responded frequently to numerous media enquiries requesting advice and information on the airborne transmission risks of SARS-CoV-2.[2]

Learned Societies and Journal Editorial Roles

2022 – present Member of the Awards Committee of the Faraday Division of the *Royal Society of Chemistry*.

2020 – present Editor-in-Chief of *Aerosol Science and Technology*, the journal of the American Association for Aerosol Research (AAAR, published by Taylor and Francis), the first occasion that the editorial office has been based outside North America. Duties of the EiC involve: first review of all submissions (~300/year) to ensure manuscripts are within journal scope and of sufficient quality to send to review; assignment of editor; tracking of submission, reviewing and publication process; establishing

[1] See, as examples, Guardian newspaper report of CELEBS study on airborne survival: https://www.theguardian.com/world/2022/jan/11/covid-loses-90-of-ability-to-infect-within-five-minutes-in-air-study
Independent newspaper report of AERATOR study on aerosol generating procedures: https://www.independent.co.uk/news/health/covid-coughing-study-agp-aerosol-b1797358.html
Guardian newspaper report of the CELEBS device for studying airborne survival: https://www.theguardian.com/world/2020/sep/25/uk-scientists-begin-study-of-how-long-covid-can-survive-in-the-air
BBC News report of the CELEBS device for studying airborne survival: https://www.youtube.com/watch?v=jlF9MXGf3t0
BBC News report of the outcomes of the PERFORM study: https://www.bbc.co.uk/news/health-53853961
Guardian podcast "How risky is singing": https://www.theguardian.com/science/audio/2020/jul/28/covid-19-how-risky-is-singing-podcast
BBC News report of the PERFORM study: https://www.bbc.co.uk/news/entertainment-arts-53446329?intlink_from_url=&link_location=live-reporting-story
i newspaper report on outcomes of PERFORM study for musical instruments: https://inews.co.uk/news/science/wind-and-brass-instruments-emit-no-more-covid-laden-aerosols-than-breathing-1075757
New York Times report on outcomes of PERFORM study for singing: https://www.nytimes.com/reuters/2020/08/20/world/europe/20reuters-health-coronavirus-britain-singing.html

[2] See, as examples, BBC discussion of what experts will be doing once lock-down is eased: https://www.bbc.co.uk/news/uk-57069293
Huffington post story on risks of transmission in a lift: https://www.huffingtonpost.co.uk/entry/risk-of-catching-covid-in-a-lift_uk_60829870e4b0e7cb020e0104
Huffington post story on risks of transmission in a park: https://www.huffingtonpost.co.uk/amp/entry/covid-transmission-risk-in-parks_uk_603e161dc5b6ff75ac3f392d/
Daily Mail on 2 m social distancing: https://www.dailymail.co.uk/wires/pa/article-8411605/Majority-want-social-distancing-remain-2-metres-poll-shows.html
The Guardian report on the transport of SARS-CoV-2 by pollution particles: https://www.theguardian.com/environment/2020/apr/24/coronavirus-detected-particles-air-pollution

	strategic priorities for the journal (e.g. inviting editorials, implementing highlight infographics and video abstracts); chairing of Editorial Board (12 members) and Editorial Advisory Board (~20 members); reporting journal performance to the Publications committee and Annual Business meeting of the AAAR.
2017 – 2020	President of the UK and Ireland Aerosol Society. The Aerosol Society has more than 800 members and organises meetings and workshops attended by more than 1000 researchers each year, including the annual *Drug Delivery to the Lungs* conference, the largest respiratory drug delivery conference in Europe. The Society has an annual turnover of more than £0.6M and employees three administrators (~2.5 fte). Industrial sponsorship for the DDL conference alone is in excess of £350k/year. The operation of the Society is overseen by a committee of 12 academics, public sector and industrial researchers in aerosol science.
2015 – 2017	Vice-President of the UK and Ireland Aerosol Society.
2016 – 2020	Editorial board, Royal Society of Chemistry journal, Chemical Society Reviews
2013 – present	Fellow of the Royal Society of Chemistry.
2012 – 2015	Education Secretary of the UK and Ireland Aerosol Society.

Conference Organisation

2012 – 2026	I established the biannual series of international workshops *A Molecular-Level Understanding of Atmospheric Aerosols* with Ruth Signorell (ETH, Zürich), and chaired 2012 and 2014 workshops at University of British Columbia, Canada, and ETH, Zürich, respectively. Four subsequent workshops have been held in California, France, Germany and Canada.
2026	Member of organising committee for the 2nd Aerosols and Microbiology Conference, 9-11th June, Microbiology Society (Leeds, UK).
2018, 2020 and 2021	Co-chair of Aerosol Society Focus meetings on Bioaerosols and COVID-19.
2015	Co-chair of the Aerosol Society Focus Meeting on New Analytical Techniques for Aerosol Science, Royal Institution
2014	Member of Scientific Committee, Gas/Plasma-Liquid Interface Chemistry: Transport, Chemistry & Fundamental Data, Lorentz Center, Leiden, Netherlands.
2013	Member of Scientific Committee, Faraday Discussion 165, Tropospheric Aerosol (University of Leeds, UK).
2007	Chairman of the scientific organising committee for the Royal Society of Chemistry Faraday Discussion 137, The Spectroscopy and Dynamics of Microparticles.

EPSRC Centre for Doctoral Training in Aerosol Science (2017 – present)

As CDT director, I oversee the running of the CDT at operational (with a Core Team of 4 administrators, a Course Director, two Lecturers in aerosol science and responsible research and innovation, and a Partner Course Manager) and strategic level (with Management Board and Independent Advisory Group). I lead on recruitment strategy, scientific direction, oversight of budget, delivery of taught elements, and development of partnerships. More specifically:

- I identified the national need for a CDT in aerosol science (in 2017) and led the development of the proposal from conception to funding. This required coordination of a core team to prepare and lead the proposal (Prof. Darragh Murnane, Deputy Director, University of Hertfordshire; Prof. Adam Boies, Partnerships Director, University of Cambridge; Dr. Kerry Knox, Science Education Specialist, University of York). Working with Prof. Murnane, we organised an engagement event with potential partners in January 2018 to co-create elements of the CDT. Prof. Murnane and I co-authored a report on skills training in aerosol science and the national need, published by the UK and Ireland Aerosol Society.[3]

[3] See: Building a UK pipeline of research, innovation and technology development for aerosol science, The Aerosol Society of UK and Ireland (2018). See https://aerosol-soc.com/developing-partnerships-explore-postgraduate-training-needs-aerosol-science/

- In 2018, I led in the development of key components of the proposal, in particular establishing the rationale for partnering across 7 institutions, securing support and co-creating the CDT with ~40 industrial and public sector partners, devising the training programme and cohort structure, developing plans for management and oversight, negotiating with institutions to commit funding to support studentships, coordinating the CDT costing, and leading the writing of application including planning for training in Responsible Innovation and Equality, Diversity and Inclusion. In 2023, I led the development of a successful renewal bid for the CDT, securing a second tranche of funding from EPSRC to continue the CDT through to 2032. This led to a repeat of many of the activities detailed below.
- Once awarded, I led the negotiation and implementation of an Educational Partnership Agreement across the 7 collaborating institutions (Bristol, Bath, Cambridge, Hertfordshire, Imperial, Leeds and Manchester, including Surrey and Birmingham on the renewed Centre). I worked with School and Faculty committees to develop the required Unit documentation for programme approval and advised academic leads at the 7(8) institutions on their local requirements. I secured funding within the School to establish a CDT hub for training.
- Through establishing a Management Board (MB), Thematic Board (TB), Partnerships Board (PB), Equality Diversity and Inclusion (ED&I) Committee, and an Independent Advisory Group, I ensured robust and effective management and evaluation structures were in place to deliver the CDT. I led in the appointment of a CDT administrator and Course Director. Three further administrators now have joined the team to support the CDT delivery funded by income from Industrial Partners.
- Working with the Partnerships Director and the Partnerships Administrator, we established a three Tier model for partner engagement. Starting from a base of 43 partners at application, we have now grown to over 90 partners engaged with the CDT at the three Tiers. For example, we have ~10 partners who pay an annual registration at Tier 2 level for access to all of our training resources for CPD and ~45 studentships which are part or fully funded by partners. Our cash income from partners is ~£3M.
- I have worked with the Course Director to develop the Year 1 taught programme, to produce resources for the online training portal and establish assessment procedures. Following definition of a syllabus approved by the MB, we have coordinated the delivery of the taught component that now involves ~30 academics from across the 8 partnering institutions, and is supported by the Bristol Doctoral College. The Year 1 taught component is now supplemented by additional training through two summer schools held each summer.
- Working with the MB and TB, and advised by the ED&I Committee, I have led the development of the process for defining PhD projects and mentoring teams, and for the recruitment process. With considerable investment from industry and institutions, we have registered over 130 students for Cohorts 1-7, demonstrating considerable additional leverage of the 56 EPSRC funded studentships during this period.
- We have established procedures for accepting new academic staff as members of the CDT broadening our diversity in background and research coverage. The CDT has grown from 40 academics at application to 90 across the 8 institutions.
- We have established robust routes for feedback and evaluation from the student cohorts, supervisors, partners and the Independent Advisory Group, across the broad range of CDT activities. This is providing guidance on the development of a renewal bid, subject to a Call for CDT proposals expected in Autumn 2022.

Academic Leadership, Impact and Service at the University of Bristol (activities in last 10 years summarised)

2023 – present	Head of Physical & Theoretical Chemistry, School of Chemistry, with responsibility for line managing ~25 Pathway 1-3 academic staff, undertaking annual staff review and development. In this role, I also am a member of the Senior Leadership Team (with the Head of School, the Heads of the Organic and Biological, and Inorganic and Materials Sections and the School Manager) and the School Executive Board.
2021	Research Excellence Framework 2021. Based on outcomes from the PEFORM and AERATOR project, I contributed an *Impact Case Study* for the School of Chemistry, University of Bristol, REF 2021 submission "Aerosol science informs global clinical and public health policy on COVID-19 transmission". This ICS was

based on a reassessment of the risks of COVID-19 transmission and the change in government guidance on singing and musical instrument performance that resulted from the PERFORM study in summer 2020.

2019 – 2021 In preparation for the REF submission, I was involved in the physical chemistry sectional appraisal of research outputs from academic staff.

Enterprise Activity

Through the award of funding through the EPSRC Impact Acceleration Account, I have collaborated with Biral, a company that specialises in meteorological and aerosol instrumentation, to develop and licence a prototype commercial Aerosol Optical Tweezers instrument, the AOT-100.[4] The prototype was completed in August 2014 with five subsequent instrument sales to academic teams in the USA, Germany, China and France.

More generally, I have worked closely with the CEO, chief scientist and engineer at Biral over a number of years to explore opportunities for commercialising further instruments. This led to the recent development of a CELEBS prototype for examining the airborne survival of pathogens, funded by DSTL and the US Department of Homeland Security and the National Biodefense Analysis and Countermeasures Center (NBACC). This instrument will shortly be shipped to the US. Biral will release a commercial instrument in 2023.

Over the last few years, I have also secured funding from Steer Energy to develop an aerosol route to sealing gas leaks. This led to a patent. I have also secured significant contract funded work from DSTL-Porton Down, Chiesi Farmaceutici, and Danone, funding a post-doctoral researcher to undertake research in each case.

Further Professional Activities Outside the University

I am a frequent referee for journals and have reviewed manuscripts for journals extending over a broad range of disciplines, including as examples: Proc. Nat. Acad. Sci. USA, Nature, Physical Chemistry Chemical Physics, Journal of Chemical Physics, Journal of Physical Chemistry A, Faraday Discussions, Aerosol Science and Technology, Optics Communications, Optics Letters, Journal of the Optical Society of America, Lab on a Chip, Journal of Geophysical Research, Atmospheric Environment, Environmental Science and Technology, the International Journal of Heat and Mass Transfer, and the International Review of Physical Chemistry. I also review grant applications regularly for EPSRC, NERC, RS, NSF (USA), ERC and Research Corporation (USA).

Public Engagement Activities

Notable public engagement activities in the last 5-years have included the following:

2022 Talk to the Bristol Scientific Society on “The Air We Breathe: Aerosols for Good and Bad”.

2021 Royal Institution Christmas Lecture. I contributed an experimental demonstration of the aerosol generated when breathing and speaking to Lecture 2, “The Perfect Storm”, hosted by Prof. Jonathan Van-Tam.

2021 Talk to the Cardiff Scientific Society on “The Air We Breathe: Aerosols for Good and Bad”.

2020 Guardian Science Podcast, Covid-19: How risky is singing? – podcast.[5]

2020 Local public engagement organised by the University of Bristol on Bristol’s contributions to understanding COVID-19, talk title “COVID-19: Aerosols, Droplets and Airborne Transmission”.

[4] See https://www.biral.com/product/aot-100-aerosol-optical-tweezers/#product-overview
[5] See https://www.theguardian.com/science/audio/2020/jul/28/covid-19-how-risky-is-singing-podcast

Publications

1 B. E. A. Miles, L. K. Mahato, R. E. H. Miles, E. Costard, J. Schröder, A. Dubbelboer and J. P. Reid, Comparing the evaporation kinetics and dried morphologies of particles generated by spray dryers and single-particle techniques, *Food Res. Int.*, 2026, **229**, 118522.

2 J. Harrison, A. Marsh, R. E. H. Miles, A. E. Haddrell, B. R. Bzdek and J. P. Reid, Enhancement of Esterification Reaction Rates in Solvent-Free Aerosol Droplets, *J. Am. Chem. Soc.*, 2026, in press, DOI:10.1021/jacs.5c18218.

3 A. Rafferty, A. J. Orr-Ewing, J. P. Reid and M. I. Cotterell, Efficient calculation of broadband light scattering spectra from spherical, homogeneous particles, *J. Quant. Spectrosc. Radiat. Transf.*, 2026, **348**, 109708.

4 E. Neal, L. K. Mahato, B. Hall, R. J. Thomas, M. D. Walker, J. C. Vincent, S. T. Parker, V. E. Foot, E. S. Kruger, W. Sellors and J. P. Reid, High optical and temporal resolution investigations into the morphological factors that influence particle resuspension, *Aerosol Sci. Technol.*, 2026, in press, DOI:10.1080/02786826.2025.2599930.

5 J. Yeager, K. Beck, S. Gardner, M. McMann, S. Wood, B. Holland, E. Keyser, C. Davies, S. Ratnesar-Shumate, A. Haddrell, J. Reid, R. Thomas and P. Dabisch, Comparison of the decay rates of aerosolized E. coli measured using different laboratory approaches for particle aging, *Aerosol Sci. Technol.*, 2025, **59**, 1442–1455.

6 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, B. R. Bzdek and R. Epstein, Mitigation of Respirable Aerosol Particles from Speech and Language Therapy Exercises, *J. Voice*, 2025, **39**, 1267–1275.

7 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, B. R. Bzdek and R. Epstein, Quantification of Respirable Aerosol Particles from Speech and Language Therapy Exercises, *J. Voice*, 2025, **39**, 43–56.

8 Jamie McLauchl, J. S. Walker, V. Sanjay, M. Jalaal, J. P. Reid, A. M. Squires and A. Souslov, Bouncing microdroplets on hydrophobic surfaces, *PNAS*, 2025, **122**, e2507309122.

9 G. W. Nava, A. Szczepanska, L. Ng, S. Khan, F. Hamilton, R. Scott, U. Mahmud, D. Saralaya, N. Maskell, J. P. Reid, B. R. Bzdek and J. W. Dodd, Determinants of respiratory tract aerosol generation in a diverse clinical population: An observational study, *BMJ Open Respir. Res.*, 2025, **12**, e003494.

10 J. Tian, B. Luo, A. Rafferty, A. E. Haddrell, U. K. Krieger and J. P. Reid, Measurements of Surrogate Respiratory Sessile Droplet pH and Implications for Exhaled Respiratory Aerosol and Airborne Disease Transmission, *ACS Cent. Sci.*, 2025, **11**, 1009–1019.

11 Y. L. Jiang, D. A. Hardy, J. R. Ruiz, R. Friend and J. P. Reid, Comparative time-resolved measurements of aerosol plume size distributions at two relative humidities using a comparative hygroscopic aerodynamic particle sizing approach, *Aerosol Sci. Technol.*, 2025, **59**, 705–718.

12 Y. L. Jiang, J. R. Ruiz, R. Friend and J. P. Reid, Characterizing the Influence of Relative Humidity and Ethanol Content on the Dynamic Size Distributions of Aerosols Generated from a Soft Mist Inhaler, *Pharm. Res.*, 2025, **42**, 651–663.

13 Y. L. Jiang, J. Kadziola, J. R. Ruiz, R. Friend and J. P. Reid, Pharmaceutics measurements of the hygroscopic growth of inhaled pharmaceutical ingredients, *RSC Pharm.*, 2025, **2**, 630–643.

14 B. E. A. Miles, E. Winter, S. Mirembe, D. Hardy, L. K. Mahato, R. E. H. Miles and J. P. Reid, Evaporation Kinetics and Final Particle Morphology of Multicomponent Salt Solution Droplets, *J. Phys. Chem. A*, 2025, **129**, 762–773.

15 L. K. Mahato, S. Varlas, B. E. A. Miles, D. H. H. Chan, D. A. Hardy, J. C. Eloi, R. L. Harniman, R. E. H. Miles, S. P. Armes and J. P. Reid, Supra-particle formation by evaporation of aerosol droplets containing binary mixtures of colloidal particles: Controlling the final morphology, *J. Colloid Interface Sci.*, 2025, **682**, 251–262.

16 B. E. A. Miles, D. H. H. Chan, S. Varlas, L. K. Mahato, J. Archer, R. E. H. Miles, S. P. Armes and J.

P. Reid, Effect of the Addition of Diblock Copolymer Nanoparticles on the Evaporation Kinetics and Final Particle Morphology for Drying Aqueous Aerosol Droplets, *Langmuir*, 2024, **40**, 734–743.

17 A. Haddrell, H. Oswin, M. Otero-Fernandez, J. F. Robinson, T. Cogan, R. Alexander, J. F. S. Mann, D. Hil, A. Finn, A. D. Davidson and J. P. Reid, Ambient Carbon Dioxide Concentration Correlates with SARS-CoV-2 Aerostability and Infection Risk, *Nat. Commun.*, 2024, **15**, 3487.

18 M. Otero-Fernandez, R. J. Thomas, H. Oswin, R. Alexander, A. Haddrell and J. P. Reid, Inactivation Mechanisms of Escherichia coli in Simulants of Respiratory and Environmental Aerosol Droplets, *Atmosphere (Basel).*, 2024, **15**, 511.

19 J. P. Reid, A. R. Ferro, A. Finn, J. V. Lawler, J. A. Lednicky, J. Löndahl, C.-J. Fraenkel, J. L. Santarpia, S. A. Ratnesar-Shumate and C.-Y. Wu, World Health Organization report removes the aerosol/droplet dichotomy but does not move us forward in infection control strategies, *Aerosol Sci. Technol.*, 2024, **58**, 1089–1092.

20 Edward Neal, L. K. Mahato, E. Butler, R. J. Thomas, M. D. Walker, J. C. Vincent, S. T. Parker, V. E. Foot, E. S. Kruger, B. Higgins, W. Sellors and J. P. Reid, A novel approach to resuspend particles of controlled morphologies in a 3D printed wind tunnel, *Aerosol Sci. Technol.*, 2024, **58**, 1389–1404.

21 B. Moseley, J. Archer, C. M. Orton, H. E. Symons, N. A. Watson, B. Saccente-kennedy, K. E. J. Philip, J. H. Hull, D. Costello, J. D. Calder, P. L. Shah, B. R. Bzdek and J. P. Reid, Relationship between Exhaled Aerosol and Carbon Dioxide Emission Across Respiratory Activities, *Environ. Sci. Technol.*, 2024, **58**, 15120–15126.

22 N. C. Armstrong Green, A. E. Haddrell, F. K. A. Gregson, D. Lewis, T. Church and J. P. Reid, Studies of the Crystallization and Dissolution of Individual Suspended Sodium Chloride Aerosol Particles, *J. Phys. Chem. A*, 2024, **128**, 4315–4323.

23 A. Haddrell, D. Lewis, T. Church and J. P. Reid, Novel instrument to measure water uptake, dissolution and hygroscopic growth of an individual levitated aerosol particle in an environment identical to the lung (relative humidity >99.5%), *Aerosol Sci. Technol.*, 2024, **58**, 915–929.

24 Joshua L. Santarpia, J. P. Reid, C.-Y. Wu, J. A. Lednicky and H. P. Oswin, The aerobiological pathway of natural respiratory viral aerosols, *Trends Anal. Chem.*, 2024, **172**, 117557.

25 J. Tian, R. W. Alexander, D. A. Hardy, T. G. Hilditch, H. P. Oswin, A. E. Haddrell and J. P. Reid, The microphysics of surrogates of exhaled aerosols from the upper respiratory tract, *Aerosol Sci. Technol.*, 2024, **58**, 461–474.

26 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, S. Pallav L, D. Costello, J. P. Reid and B. R. Bzdek, Comparisons of aerosol generation across different musical instruments and loudness, *J. Aerosol Sci.*, 2024, **177**, 106318.

27 H. P. Oswin, E. Blake, A. E. Haddrell, A. Finn, S. Sriskandan, J. P. Reid, A. Halliday and A. Goenka, An assessment of the airborne longevity of group A Streptococcus, *Microbiology*, 2024, **170**, 001421.

28 A. J. Shrimpton, V. Brown, J. Vassallo, J. P. Nolan, J. Soar, F. Hamilton, T. M. Cook, B. R. Bzdek, 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.

29 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, B. R. Bzdek and J. P. Reid, The filtration efficiency of surgical masks for expiratory aerosol and droplets generated by vocal exercises, *Aerosol Sci. Technol.*, 2024, **58**, 39–53.

30 V. Hamilton, S. Sheikh, A. Szczepanska, N. Maskell, F. Hamilton, J. P. Reid, B. R. Bzdek and J. R. D. Murray, Diathermy and bone sawing are high aerosol yield procedures, *Bone Jt. Res.*, 2023, **12**, 636–643.

31 A. Haddrell, M. Otero-Fernandez, H. Oswin, T. Cogan, J. Bazire, J. Tian, R. Alexander, J. F. S. Mann, D. Hill, A. Finn, A. D. Davidson and J. P. Reid, Differences in airborne stability of SARS-CoV-2 variants of concern are impacted by alkalinity of surrogates of respiratory aerosol, *J. R. Soc.*

Interface, 2023, **20**, 20230062.

32 T. G. Hilditch, D. A. Hardy, N. J. Stevens, P. B. Glover and J. P. Reid, Single-particle measurements and estimations of activity coefficients for semi-volatile organic aerosol of known chemical speciation, *Environ. Sci. Atmos.*, 2023, **3**, 931–941.

33 D. A. Hardy, J. F. Robinson, T. G. Hilditch, E. Neal, P. Lemaitre, J. S. Walker and J. P. Reid, Accurate Measurements and Simulations of the Evaporation and Trajectories of Individual Solution Droplets, *J. Phys. Chem. B*, 2023, **127**, 3416–3430.

34 H. P. Oswin, A. E. Haddrell, C. Hughes, M. Otero-Fernandez, R. J. Thomas and J. P. Reid, Oxidative Stress Contributes to Bacterial Airborne Loss of Viability, *Microbiol. Spectr.*, 2023, **11**, e03347-22.

35 P. Akhuemokhan, N. A. Green, A. Haddrell, D. Lewis, J. P. Reid and B. Forbes, How to engineer aerosol particle properties and biopharmaceutical performance of propellant inhalers, *Int. J. Pharm.*, 2023, **634**, 122676.

36 A. J. Shrimpton, G.O'Farrell, H. M.Howes, R. Craven, A. R. Duffen, T. M. Cook, J. P. Reid, J. M.Brown and A. E. Pickering, A quantitative evaluation of aerosol generation during awake tracheal intubation, *Anaesthesia*, 2023, **78**, 587–597.

37 J. Harrison, Brian 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 B. R.Bzdek, Emission rates, size distributions, and generation mechanism of oral respiratory droplets, *Aerosol Sci. Technol.*, 2023, **57**, 187–199.

38 G. H. Downing, Yannis Hardalupas, J. Archer, H. E. Symons, U. B. Baloglu, D. Schien, B. R. Bzdek and J. P. Reid, Computational and experimental study of aerosol dispersion in a ventilated room, *Aerosol Sci. Technol.*, 2023, **7**, 50–62.

39 L. P. McCarthy, J. P. Reid and J. S. Walker, High frame-rate imaging of the shape oscillations and spreading dynamics of picolitre droplets impacting on a surface, *Phys. Fluids*, 2023, **35**, 122010.

40 L. P. McCarthy, P. Knapp, J. S. Walker, J. Archer, R. E. H. Miles, M. E. J. Stettler and J. P. Reid, Dynamics and outcomes of binary collisions of equi-diameter picolitre droplets with identical viscosities, *Phys. Chem. Chem. Phys.*, 2022, 21242–21249.

41 J. P. Reid, 40 years of Aerosol Science and Technology, *Aerosol Sci. Technol.*, 2022, **56**, 973–975.

42 L. P. McCarthy, P. Knapp, J. S. Walker, J. Archer, R. E. H. Miles, M. E. J. Stettler and J. P. Reid, Dynamics and outcomes of binary collisions of equi-diameter picolitre droplets with identical viscosities, *Phys. Chem. Chem. Phys.*, 2022, **24**, 21242–21249.

43 R. W. Alexander, J. Tian, A. E. Haddrell, H. P. Oswin, E. Neal, D. A. Hardy, M. Otero-fernandez, J. F. S. Mann, T. A. Cogan, A. Finn, A. D. Davidson, D. J. Hill and J. P. Reid, Mucin Transiently Sustains Coronavirus Infectivity through Heterogenous Changes in Phase Morphology of Evaporating Aerosol, *Viruses*, 2022, **14**, 1856.

44 Y. Drossinos, J. P. Reid, W. Hugentobler and N. I. Stilianakis, Challenges of integrating aerosol dynamics into SARS-CoV-2 transmission models, *Aerosol Sci. Technol.*, 2022, **56**, 777–784.

45 J. P. Reid, K. J. Knox, A. M. Boies, R. E. H. Miles and D. Murnane, Revolutionizing Training in Aerosol Science, *Int. Environ. Technol.*, 2022, **32**, 24–25.

46 H. P. Oswin, A. E. Haddrell, M. Otero-Fernandez, J. F. S. Mann, T. A. Cogan, T. G. Hilditch, J. Tian, D. A. Hardy, D. J. Hill, A. Finn, A. D. Davidson and J. P. Reid, The Dynamics of SARS-CoV-2 Infectivity with Changes in Aerosol Microenvironment, *Proc. Natl. Acad. Sci.*, 2022, **119**, e2200109119.

47 M. I. Cotterell, J. W. Knight, J. P. Reid and A. J. Orr-Ewing, Accurate Measurement of the Optical Properties of Single Aerosol Particles Using Cavity Ring-Down Spectroscopy, *J. Phys. Chem. A*, 2022, **126**, 2619–2631.

48 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, B. R. Bzdek, J. H. Hull, J. P. Reid and P. L. Shah, A comparison of respiratory particle emission rates at rest and while speaking or exercising,

Commun. Med., 2022, **2**, 44.

49 A. J. Shrimpton, J. M. Brown, T. M. Cook, C. M. Penfold, J. P. Reid and A. E. Pickering, Quantitative evaluation of aerosol generation from upper airway suctioning assessed during tracheal intubation and extubation sequences in anaesthetized patients, *J. Hosp. Infect.*, 2022, **124**, 13–21.

50 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, B. R. Bzdek, 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.

51 J. F. Robinson, I. Rios de Anda, F. J. Moore, F. K. A. Gregson, J. P. Reid, L. Husain, R. P. Sear and C. P. Royall, How effective are face coverings in reducing transmission of COVID-19?, *Aerosol Sci. Technol.*, 2022, **56**, 473–487.

52 T. Dudding, S. Sheikh, F. Gregson, J. Haworth, S. Haworth, B. G. Main, A. J. Shrimpton, F. W. Hamilton, A. J. Ireland, N. A. Maskell, J. P. Reid, B. R. Bzdek and M. Gormley, A clinical observational analysis of aerosol emissions from dental procedures, *PLoS One*, 2022, **17**, e0265076.

53 S. Sheikh, F. W. Hamilton, G. W. Nava, F. K. A. Gregson, D. T. Arnold, C. Riley, J. Brown, J. P. Reid, B. R. Bzdek, N. A. Maskell and 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.

54 F. W. Hamilton, F. K. A. Gregson, D. T. Arnold, S. Sheikh, K. Ward, J. Brown, E. Moran, C. White, A. J. Morley, B. R. Bzdek, J. P. Reid, N. A. Maskell and J. W. Dodd, Aerosol emission from the respiratory tract: an analysis of aerosol generation from oxygen delivery systems, *Thorax*, 2022, **77**, 276–282.

55 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, B. R. Bzdek and A. E. Pickering, Quantitative evaluation of aerosol generation during manual facemask ventilation, *Anaesthesia*, 2022, **77**, 22–27.

56 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, B. R. Bzdek and J. P. Reid, Analytical challenges when sampling and characterising exhaled aerosol, *Aerosol Sci. Technol.*, 2022, **56**, 160–175.

57 F. K. A. Gregson, A. J. Shrimpton, F. Hamilton, T. M. Cook, J. P. Reid, A. E. Pickering, D. J. Pournaras, B. R. Bzdek and J. Brown, Identification of the source events for aerosol generation during oesophago-gastro-duodenoscopy, *Gut*, 2022, **71**, 871–878.

58 K. M. A. Ho, H. Davies, R. Epstein, P. Bassett, Á. Hogan, Y. Kabir, J. Rubin, G. Y. Shin, J. P. Reid, R. Torii, M. K. Tiwari, R. Balachandran and L. B. Lovat, Spatiotemporal droplet dispersion measurements demonstrate face masks reduce risks from singing, *Sci. Rep.*, 2021, **11**, 24183.

59 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, B. R. Bzdek, J. P. Reid and N. A. Maskell, Standard pleural interventions are not high-risk aerosol generating procedures, *Eur. Respir. J.*, 2021, **58**, 2101064.

60 H. Oswin, A. Haddrell, M. Otero-Fernandez, T. Cogan, J. F. S. Mann, C. Morley, D. Hill, A. D. Davidson, A. Finn, R. Thomas and J. P. Reid, Measuring stability of virus in aerosols under varying environmental conditions, *Aerosol Sci. Technol.*, 2021, **55**, 1315–1320.

61 F. Hamilton, D. Arnold, B. R. Bzdek, J. Dodd, J. Reid and N. Maskell, Aerosol generating procedures: are they of relevance for transmission of SARS-CoV-2?, *Lancet Respir. Med.*, 2021, **9**, 687–689.

62 J. F. Robinson, I. Rios de Anda, F. J. Moore, J. P. Reid, R. P. Sear and C. P. Royall, Efficacy of face coverings in reducing transmission of COVID-19: Calculations based on models of droplet capture, *Phys. Fluids*, 2021, **33**, 043112.

63 M. Ordoubadi, F. K. A. Gregson, H. Wang, N. B. Carrigy, M. Nicholas, S. Gracin, D. Lechuga-Ballesteros, J. P. Reid, W. H. Finlay and R. Vehring, Trileucine as a dispersibility enhancer of spray-dried inhalable microparticles, *J. Control. Release*, 2021, **336**, 522–536.

64 D. A. Hardy, J. Archer, P. Lemaitre, R. Vehring, J. P. Reid and J. S. Walker, High time resolution

measurements of droplet evaporation kinetics and particle crystallisation, *Phys. Chem. Chem. Phys.*, 2021, **23**, 18568–18579.

65 A. J. Shrimpton, F. K. A. Gregson, J. M. Brown, T. M. Cook, B. R. Bzdek, F. Hamilton, J. P. Reid and A. E. Pickering, A quantitative evaluation of aerosol generation during supraglottic airway insertion and removal, *Anaesthesia*, 2021, **76**, 1577–1584.

66 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 B. R. Bzdek, Aerosol and droplet generation from performing with woodwind and brass instruments, *Aerosol Sci. Technol.*, 2021, **55**, 1277–1287.

67 V. Legh-Land, A. E. Haddrell, D. Lewis, D. Murnane and J. P. Reid, Water Uptake by Evaporating pMDI Aerosol Prior to Inhalation Affects Both Regional and Total Deposition in the Respiratory System, *Pharmaceutics*, 2021, **13**, 941.

68 S. Ingram, G. Rovelli, Y.-C. Song, D. Topping, C. S. Dutcher, S. Liu, L. Nandy, M. Shiraiwa and J. P. Reid, Accurate Prediction of Organic Aerosol Evaporation Using Kinetic Multilayer Modeling and the Stokes–Einstein Equation, *J. Phys. Chem. A*, 2021, **125**, 3444–3456.

69 A. Valenzuela, F. Chu, A. E. Haddrell, M. I. Cotterell, J. S. Walker, A. J. Orr-Ewing and J. P. Reid, Optical Interrogation of Single Levitated Droplets in a Linear Quadrupole Trap by Cavity Ring-Down Spectroscopy, *J. Phys. Chem. A*, 2021, **125**, 394–405.

70 M. Ordoubadi, F. K. A. Gregson, H. Wang, M. Nicholas, S. Gracin, D. Lechuga-Ballesteros, J. P. Reid, W. H. Finlay and R. Vehring, On the particle formation of leucine in spray drying of inhalable microparticles, *Int. J. Pharm.*, 2021, **592**, 120102.

71 P. Lodeiro, D. R. Turner, E. P. Achterberg, F. K. A. Gregson, J. P. Reid and S. L. Clegg, Solid-Liquid Equilibria in Aqueous Solutions of Tris, Tris-NaCl, Tris-TrisHCl, and Tris-(TrisH)2SO4at Temperatures from 5 to 45 °c, *J. Chem. Eng. Data*, 2021, **66**, 437–455.

72 F. Gregson, N. Watson, C. Orton, A. Haddrell, L. McCarthy, T. Finnie, N. Gent, G. Donaldson, P. Shah, J. Calder, B. Bzdek, D. Costello and J. Reid, Comparing aerosol concentrations and particle size distributions generated by singing, speaking and breathing, *Aerosol Sci. Technol.*, 2021, **55**, 681–691.

73 J. S. Walker, J. Archer, F. K. A. Gregson, S. E. S. Michel, B. R. Bzdek and J. P. Reid, Accurate Representations of the Microphysical Processes Occurring during the Transport of Exhaled Aerosols and Droplets, *ACS Cent. Sci.*, 2021, **7**, 200–209.

74 F. Houle, R. Miles, C. Pollak and J. Reid, A purely kinetic description of the evaporation of water droplets, *J. Chem. Phys.*, 2021, **154**, 054501.

75 J. Brown, F. K. A. Gregson, A. Shrimpton, T. M. Cook, B. R. Bzdek, J. P. Reid and A. E. Pickering, A quantitative evaluation of aerosol generation during tracheal intubation and extubation, *Anaesthesia*, 2021, **76**, 174–181.

76 F. K. A. Gregson, J. F. Robinson, R. E. H. Miles, C. P. Royall and J. P. Reid, Drying and Crystallization of Evaporating Sodium Nitrate Aerosol Droplets, *J. Phys. Chem. B*, 2020, **124**, 6024–6036.

77 S. S. Petters, T. G. Hilditch, S. Tomaz, R. E. H. Miles, J. P. Reid and B. J. Turpin, Volatility Change during Droplet Evaporation of Pyruvic Acid, *ACS Earth Sp. Chem.*, 2020, **4**, 741–749.

78 B. R. Bzdek, J. P. Reid and M. I. Cotterell, Open questions on the physical properties of aerosols, *Commun. Chem.*, 2020, **3**, 1–4.

79 M. O. Fernandez, R. J. Thomas, H. Oswin, A. E. Haddrell and J. P. Reid, Transformative Approach to Investigate the Microphysical Factors Influencing the Airborne Transmission of Pathogens, *Appl. Environ. Microbiol.*, 2020, **86**, 1–13.

80 J. Archer, J. Walker, F. K. A. Gregson, D. A. Hardy and J. P. Reid, Drying Kinetics and Particle Formation from Dilute Colloidal Suspensions in Aerosol Droplets, *Langmuir*, 2020, **36**, 12481–12493.

81 Y. C. Song, S. Ingram, R. E. Arbon, D. O. Topping, D. R. Glowacki and J. P. Reid, Transient cavity

dynamics and divergence from the Stokes-Einstein equation in organic aerosol, *Chem. Sci.*, 2020, **11**, 2999–3006.

82 B. R. Bzdek, J. P. Reid, J. Malila and N. L. Prisle, The surface tension of surfactant-containing, finite volume droplets, *Proc. Natl. Acad. Sci. U. S. A.*, 2020, **117**, 8335–8343.

83 J. F. Robinson, F. K. A. Gregson, R. E. H. Miles, J. P. Reid and C. P. Royall, Drying kinetics and nucleation in evaporating sodium nitrate aerosols, *J. Chem. Phys.*, 2020, **152**, 074503.

84 G. Rovelli, Y. C. Song, A. M. MacLean, D. O. Topping, A. K. Bertram and J. P. Reid, Comparison of Approaches for Measuring and Predicting the Viscosity of Ternary Component Aerosol Particles, *Anal. Chem.*, 2019, **91**, 5074–5082.

85 K. L. Pereira, G. Rovelli, Y. C. Song, A. W. Mayhew, J. P. Reid and J. F. Hamilton, A new aerosol flow reactor to study secondary organic aerosol, *Atmos. Meas. Tech.*, 2019, **12**, 4519–4541.

86 E. Evoy, A. M. Maclean, G. Rovelli, Y. Li, A. P. Tsimpidi, V. A. Karydis, S. Kamal, J. Lelieveld, M. Shiraiwa, J. P. Reid and A. K. Bertram, Predictions of diffusion rates of large organic molecules in secondary organic aerosols using the Stokes–Einstein and fractional Stokes–Einstein relations, *Atmos. Chem. Phys.*, 2019, **19**, 10073–10085.

87 A. Haddrell, G. Rovelli, D. Lewis, T. Church and J. Reid, Identifying time-dependent changes in the morphology of an individual aerosol particle from its light scattering pattern, *Aerosol Sci. Technol.*, 2019, **53**, 1334–1351.

88 O.-P. Tikkanen, V. Hämäläinen, G. Rovelli, A. Lipponen, M. Shiraiwa, J. P. Reid, K. E. J. Lehtinen and T. Yli-Juuti, Optimization of process models for determining volatility distribution and viscosity of organic aerosols from isothermal particle evaporation data, *Atmos. Chem. Phys.*, 2019, **19**, 9333–9350.

89 F. K. A. Gregson, M. Ordoubadi, R. E. H. Miles, A. Haddrell, D. Barona, D. Lewis, T. Church, R. Vehring and J. P. Reid, Studies of Competing Evaporation Rates of Multiple Volatile Components from a Single Binary-Component Aerosol Droplet, *Phys. Chem. Chem. Phys.*, 2019, **21**, 9709–9719.

90 T. J. Bannan, M. Le Breton, M. Priestley, S. D. Worrall, A. Bacak, N. A. Marsden, A. Mehra, J. Hammes, M. Hallquist, M. R. Alfarra, U. K. Krieger, J. P. Reid, J. Jayne, W. Robinson, G. McFiggans, H. Coe, C. J. Percival and D. Topping, A method for extracting calibrated volatility information from the FIGAERO-HR-ToF-CIMS and its experimental application, *Atmos. Meas. Tech.*, 2019, **12**, 1429–1439.

91 F. K. A. Gregson, J. F. Robinson, R. E. H. Miles, C. P. Royall and J. P. Reid, Drying Kinetics of Salt Solution Droplets: Water Evaporation Rates and Crystallization, *J. Phys. Chem. B*, 2019, **123**, 266–276.

92 M. O. Fernandez, R. J. Thomas, N. J. Garton, A. Hudson, A. Haddrell and J. P. Reid, Assessing the airborne survival of bacteria in populations of aerosol droplets with a novel technology, *J. R. Soc. Interface*, 2019, **16**, 20180779.

93 A. Marsh, G. Rovelli, R. E. H. Miles and J. P. Reid, Complexity of measuring and representing the hygroscopicity of mixed component aerosol, *J. Phys. Chem. A*, 2019, **123**, 1648–1660.

94 M. Ordoubadi, F. K. A. Gregson, O. Melhem, D. Barona, R. E. H. Miles, D. D'Sa, S. Gracin, D. Lechuga-Ballesteros, J. P. Reid, W. H. Finlay and R. Vehring, Multi-Solvent Microdroplet Evaporation: Modeling and Measurement of Spray-Drying Kinetics with Inhalable Pharmaceutics, *Pharm. Res.*, 2019, **36**, 100.

95 Y. Y. Su, R. E. H. Miles, Z. M. Li, J. P. Reid and J. Xu, The evaporation kinetics of pure water droplets at varying drying rates and the use of evaporation rates to infer the gas phase relative humidity, *Phys. Chem. Chem. Phys.*, 2018, **20**, 23453–23466.

96 D. Topping, P. Connolly and J. Reid, PyBox: An automated box-model generator for atmospheric chemistry and aerosol simulations., *J. Open Source Softw.*, 2018, **3**, 755.

97 J. P. Reid, A. E. Haddrell, F. Gregson, D. Lewis, T. Church, M. Ordoubadi and R. Vehring, Hygroscopic Growth of Drugs and Excipients: An In Vitro Assessment of the Importance of Aerosol Growth in Deposition Calculations, *Respir. Drug Deliv. 2018*, 2018, **1**, 113–122.

98 F. H. Marshall, T. Berkemeier, M. Shiraiwa, L. Nandy, P. B. Ohm, C. S. Dutcher and J. P. Reid, Influence of particle viscosity on mass transfer and heterogeneous ozonolysis kinetics in aqueous-sucrose-maleic acid aerosol, *Phys. Chem. Chem. Phys.*, 2018, **20**, 15560–15573.

99 M. Ordoubadi, F. Gregson, W. H. Finlay, R. Vehring and J. P. Reid, Interaction of Evaporating Multicomponent Microdroplets with Humid Environments, *Respir. Drug Deliv. 2018*, 2018, **2**, 569–572.

100 Y. Chu, E. Evoy, S. Kamal, Y. C. Song, J. P. Reid, C. K. Chan and A. K. Bertram, Viscosity of erythritol and erythritol-water particles as a function of water activity: new results and an intercomparison of techniques for measuring the viscosity of particles, *Atmos. Meas. Tech.*, 2018, **11**, 4809–4822.

101 A. Marsh, S. S. Petters, N. E. Rothfuss, G. Rovelli, Y. C. Song, J. P. Reid and M. D. Petters, Amorphous phase state diagrams and viscosity of ternary aqueous organic/organic and inorganic/organic mixtures, *Phys. Chem. Chem. Phys.*, 2018, **20**, 15086–15097.

102 A. Valenzuela, J. P. Reid, B. R. Bzdek 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, *J. Geophys. Res. Atmos.*, 2018, **123**, 6469–6486.

103 N. E. Rothfuss, A. Marsh, G. Rovelli, M. D. Petters and J. P. Reid, Condensation Kinetics of Water on Amorphous Aerosol Particles, *J. Phys. Chem. Lett.*, 2018, **9**, 3708−3713.

104 U. K. Krieger, F. Siegrist, C. Marcolli, E. U. Emanuelsson, F. M. Gøbel, M. Bilde, A. Marsh, J. P. Reid, A. J. Huisman, I. Riipinen, N. Hyttinen, N. Myllys, T. Kurtén, T. Bannan, C. J. Percival and D. Topping, A reference data set for validating vapor pressure measurement techniques: Homologous series of polyethylene glycols, *Atmos. Meas. Tech.*, 2018, **11**, 49–63.

105 J. P. Reid, A. K. Bertram, D. O. Topping, A. Laskin, S. T. Martin, M. D. Petters, F. D. Pope and G. Rovelli, The viscosity of atmospherically relevant organic particles, *Nat. Commun.*, 2018, **9**, 956.

106 S. Ingram, C. Cai, Y.-C. Song, D. R. Glowacki, D. O. Topping, S. O'Meara and J. P. Reid, Characterising the evaporation kinetics of water and semi-volatile organic compounds from viscous multicomponent organic aerosol particles, *Phys. Chem. Chem. Phys.*, 2017, **19**, 31634–31646.

107 B. R. Bzdek and J. P. Reid, Perspective: Aerosol microphysics: From molecules to the chemical physics of aerosols, *J. Chem. Phys.*, 2017, **147**, 220901.

108 Y.-Y. Su, A. Marsh, A. E. Haddrell, Z.-M. Li and J. P. Reid, Evaporation Kinetics of Polyol Droplets: Determination of Evaporation Coefficients and Diffusion Constants, *J. Geophys. Res. Atmos.*, 2017, **122**, 12,317–12,334.

109 A. E. Haddrell, D. Lewis, T. Church, R. Vehring, D. Murnane and J. P. Reid, Pulmonary aerosol delivery and the importance of growth dynamics, *Ther. Deliv.*, 2017, **8**, 1051–1061.

110 Y. Zhang, C. Cai, S.-F. Pang, J. P. Reid and Y.-H. Zhang, A rapid scan vacuum FTIR method for determining diffusion coefficients in viscous and glassy aerosol particles, *Phys. Chem. Chem. Phys.*, 2017, **19**, 29177--29186.

111 Á. Farkas, D. Lewis, T. Church, A. Tweedie, F. Mason, A. E. Haddrell, J. P. Reid, A. Horváth and I. Balásházy, Experimental and computational study of the effect of breath-actuated mechanism built in the NEXThaler® dry powder inhaler, *Int. J. Pharm.*, 2017, **533**, 225–235.

112 C. Cai, A. Marsh, Y.-H. Zhang and J. P. Reid, Group Contribution Approach to Predict the Refractive Index of Pure Organic Components in Ambient Organic Aerosol, *Environ. Sci. Technol.*, 2017, **51**, 9683−9690.

113 M. I. Cotterell, R. E. Willoughby, B. R. Bzdek, A. J. Orr-Ewing and J. P. Reid, A complete parameterisation of the relative humidity and wavelength dependence of the refractive index of hygroscopic inorganic aerosol particles, *Atmos. Chem. Phys.*, 2017, **17**, 9837–9851.

114 R. E. Willoughby, M. I. Cotterell, H. Lin, A. J. Orr-Ewing and J. P. Reid, Measurements of the Imaginary Component of the Refractive Index of Weakly Absorbing Single Aerosol Particles, *J. Phys. Chem. A*, 2017, **121**, 5700−5710.

115 P. J. Gallimore, P. T. Griffiths, F. D. Pope, J. P. Reid and M. Kalberer, Comprehensive modeling study of ozonolysis of oleic acid aerosol based on real-time, online measurements of aerosol composition, *J. Geophys. Res. Atmos.*, 2017, **122**, 4364–4377.

116 A. Marsh, G. Rovelli, Y.-C. Song, K. L. Pereira, R. E. Willoughby, B. R. Bzdek, J. Hamilton, A. 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 Discuss.*, 2017, **200**, 639–661.

117 G. Rovelli, R. E. H. Miles, J. P. Reid and S. L. Clegg, Hygroscopic Properties of Aminium Sulphate Aerosols, *Atmos. Chem. Phys.*, 2017, **17**, 4369–4385.

118 A. E. Haddrell, R. E. H. Miles, B. R. Bzdek, J. P. Reid, R. J. Hopkins and J. S. Walker, Coalescence Sampling and Analysis of Aerosols using Aerosol Optical Tweezers, *Anal. Chem.*, 2017, **89**, 2345−2352.

119 H. C. Boyer, B. R. Bzdek, J. P. Reid and C. S. Dutcher, A Statistical Thermodynamic Model for Surface Tension of Organic and Inorganic Aqueous Mixtures, *J. Phys. Chem. A*, 2017, **121**, 198–205.

120 A. Marsh, R. E. H. Miles, G. Rovelli, A. G. Cowling, L. Nandy, C. S. Dutcher and J. P. Reid, Influence of Organic Compound Functionality on Aerosol Hygroscopicity: Dicarboxylic Acids, Alkyl-Substituents, Sugars and Amino Acids, *Atmos. Chem. Phys.*, 2017, **17**, 5583–5599.

121 F. H. Marshall, R. E. H. Miles, Y.-C. Song, P. B. Ohm, R. M. Power, J. P. Reid and C. S. Dutcher, Diffusion and Reactivity in Ultraviscous Aerosol and the Correlation with Particle Viscosity, *Chem. Sci.*, 2016, **7**, 1298–1308.

122 C. Cai, R. E. H. Miles, M. I. Cotterell, A. Marsh, G. Rovelli, A. M. J. Rickards, Y.-H. Y. H. Zhang and J. P. Reid, Comparison of Methods for Predicting the Compositional Dependence of the Density and Refractive Index of Organic-Aqueous Aerosols, *J. Phys. Chem. A*, 2016, **120**, 6604−6617.

123 Y. C. Song, A. E. Haddrell, B. R. Bzdek, J. P. Reid, T. Bannan, D. O. Topping, C. J. Percival and C. Cai, Measurements and Predictions of Binary Component Aerosol Particle Viscosity, *J. Phys. Chem. A*, 2016, **120**, 8123–8137.

124 P. J. Bruggeman, M. J. Kushner, B. R. Locke, J. G. E. Gardeniers, W. G. Graham, D. B. Graves, R. C. H. M. Hofman-Caris, D. Maric, J. P. Reid, E. Ceriani, D. Fernandez Rivas, J. E. Foster, S. C. Garrick, Y. Gorbanev, S. Hamaguchi, F. Iza, H. Jablonowski, E. Klimova, J. Kolb, F. Krcma, P. Lukes, Z. Machala, I. Marinov, D. Mariotti, S. Mededovic Thagard, D. Minakata, E. C. Neyts, J. Pawlat, Z. L. Petrovic, R. Pflieger, S. Reuter, D. C. Schram, S. Schröter, M. Shiraiwa, B. Tarabová, P. A. Tsai, J. R. R. Verlet, T. von Woedtke, K. R. Wilson, K. Yasui and G. Zvereva, Plasma–liquid interactions: a review and roadmap, *Plasma Sources Sci. Technol.*, 2016, **25**, 053002.

125 M. I. Cotterell, T. C. Preston, A. J. Orr-Ewing and J. P. Reid, Assessing the Accuracy of Complex Refractive Index Retrievals from Single Aerosol Particle Cavity Ring-Down Spectroscopy, *Aerosol Sci. Technol.*, 2016, **50**, 1077–1095.

126 K. J. Gorkowski, H. Beydoun, M. Aboff, J. Walker, J. P. Reid and R. C. Sullivan, Advanced Aerosol Optical Tweezers Chamber Design to Facilitate Phase-Separation and Equilibration Timescale Experiments on Complex Droplets, *Aerosol Sci. Technol.*, 2016, **50**, 1327–1341.

127 B. R. Bzdek, 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, *J. Chem. Phys.*, 2016, **145**, 054502.

128 R. E. H. Miles, J. F. Davies and J. P. Reid, The influence of the surface composition of mixed monolayer films on the evaporation coefficient of water, *Phys. Chem. Chem. Phys.*, 2016, **18**, 19847–19858.

129 G. Rovelli, R. E. H. Miles, J. P. Reid and S. L. Clegg, Accurate Measurements of Aerosol Hygroscopic Growth Over a Wide Range in Relative Humidity, *J. Phys. Chem. A*, 2016, **120**, 4376−4388.

130 A. Baldelli, R. M. Power, R. E. H. Miles, J. P. Reid and R. Vehring, Effect of crystallization kinetics on the properties of spray dried microparticles, *Aerosol Sci. Technol.*, 2016, **50**, 693–704.

131 B. R. Bzdek, R. M. Power, S. H. Simpson, J. P. Reid and C. P. Royall, Precise, contactless measurements of the surface tension of picolitre aerosol droplets, *Chem. Sci.*, 2016, **7**, 274–285.

132 M. I. Cotterell, B. J. Mason, T. C. Preston, A. J. Orr-Ewing and J. P. Reid, Optical Extinction Efficiency Measurements on Fine and Accumulation Mode Aerosol Using Single Particle Cavity Ring-Down Spectroscopy, *Phys. Chem. Chem. Phys.*, 2015, **17**, 15843–15856.

133 A. M. J. Rickards, Y.-C. Song, R. E. H. Miles, T. C. Preston and J. P. Reid, Variabilities and Uncertainties in Characterising Water Transport Kinetics in Glassy and Ultraviscous Aerosol, *Phys. Chem. Chem. Phys.*, 2015, **17**, 10059–10073.

134 S. Corsetti, R. E. H. Miles, C. McDonald, Y. Belotti, J. P. Reid, J. Kiefer and D. McGloin, Probing the Evaporation Dynamics of Ethanol/Gasoline Biofuel Blends Using Single Droplet Manipulation Techniques, *J. Phys. Chem. A*, 2015, **119**, 12797–12804.

135 T. C. Preston and J. P. Reid, Determining the size and refractive index of microspheres using the mode assignments from Mie resonances, *J. Opt. Soc. Am. A*, 2015, **32**, 2210.

136 A. E. Haddrell, J. F. Davies and J. P. Reid, Dynamics of Particle Size on Inhalation of Environmental Aerosol and Impact on Deposition Fraction, *Environ. Sci. Technol.*, 2015, **49**, 14512−14521.

137 D. M. Lienhard, A. J. Huisman, U. K. Krieger, Y. Rudich, C. Marcolli, B. P. Luo, D. L. Bones, J. P. Reid, A. T. Lambe, M. R. Canagaratna, P. Davidovits, T. B. Onasch, D. R. Worsnop, S. S. Steimer, T. Koop and T. Peter, Viscous organic aerosol particles in the upper troposphere : diffusivity-controlled water uptake and ice nucleation ?, *Atmos. Chem. Phys.*, 2015, **15**, 13599–13613.

138 C. Cai, S.-H. Tan, H.-N. Chen, J.-B. Ma, Y. Wang, J. P. Reid and Y. H. Zhang, Slow water transport in MgSO4 aerosol droplets at gel-forming relative humidities, *Phys. Chem. Chem. Phys.*, 2015, **17**, 29753–29763.

139 M. I. Cotterell, T. C. Preston, B. J. Mason, A. J. Orr-Ewing and J. P. Reid, in *Proc. SPIE 9548*, 2015, p. 95480C.

140 B. J. Mason, M. I. Cotterell, T. C. Preston, A. J. Orr-Ewing and J. P. Reid, Direct Measurements of the Optical Cross Sections and Refractive Indices of Individual Volatile and Hygroscopic Aerosol Particles, *J. Phys. Chem. A*, 2015, **119**, 5701–5713.

141 H. C. Price, J. Mattsson, Y. Zhang, A. Bertram, J. F. Davies, J. W. Grayson, S. T. Martin, D. O'Sullivan, J. P. Reid, A. M. Rickards and B. J. Murray, Water diffusion in atmospherically relevant α-pinene secondary organic material, *Chem. Sci.*, 2015, **6**, 4876–4883.

142 T. C. Preston and J. P. Reid, Angular scattering of light by a homogeneous spherical particle in a zeroth-order Bessel beam and its relationship to plane wave scattering, *J. Opt. Soc. Am. A*, 2015, **32**, 1053–1062.

143 M. Bilde, K. Barsanti, M. Booth, C. D. Cappa, N. M. Donahue, E. U. Emanuelsson, G. McFiggans, U. K. Krieger, C. Marcolli, D. Topping, P. Ziemann, M. Barley, S. Clegg, B. Dennis-Smither, M. Hallquist, Å. M. Hallquist, A. Khlystov, M. Kulmala, D. Mogensen, C. J. Percival, F. Pope, J. P. Reid, M. a. V. Ribeiro da Silva, T. Rosenoern, K. Salo, V. P. Soonsin, T. Yli-Juuti, N. L. Prisle, J. Pagels, J. Rarey, A. a. Zardini and I. Riipinen, Saturation Vapor Pressures and Transition Enthalpies of Low-Volatility Organic Molecules of Atmospheric Relevance: From Dicarboxylic Acids to Complex Mixtures, *Chem. Rev.*, 2015, **115**, 4115–4156.

144 D. Stewart, C. Cai, J. Nayler, T. C. Preston, J. P. Reid, U. Krieger, C. Marcolli and Y.-H. Zhang, Liquid-Liquid Phase Separation in Mixed Organic/Inorganic Single Aqueous Aerosol Droplets, *J. Phys. Chem. A*, 2015, **119**, 4177–4190.

145 C. Cai, D. J. Stewart, J. P. Reid, Y. Zhang, P. Ohm, C. S. Dutcher and S. L. Clegg, Organic Component Vapor Pressures and Hygroscopicities of Aqueous Aerosol Measured by Optical Tweezers, *J. Phys. Chem. A*, 2015, **119**, 704–718.

146 S. Corsetti, R. E. H. Miles, J. P. Reid, J. Kiefer and D. McGloin, in *Proceedings of SPIE - The International Society for Optical Engineering*, 2014, vol. 9164.

147 J. P. Reid, B. J. Mason, M. I. Cotterell, T. C. Preston and A. J. Orr-Ewing, in *Proceedings of SPIE - The International Society for Optical Engineering*, 2014, vol. 9164.

148 J. P. Reid, R. M. Power, C. Cai and S. H. Simpson, in *Proceedings of SPIE - The International Society for Optical Engineering*, 2014, vol. 9164.

149 R. M. Power, D. R. Burnham and J. P. Reid, Toward optical-tweezers-based force microscopy for airborne microparticles, *Appl. Opt.*, 2014, **53**, 8522–8534.

150 D. M. Lienhard, A. J. Huisman, D. L. Bones, Y.-F. Te, B. P. Luo, U. K. Krieger and J. P. Reid, Retrieving the translational diffusion coefficient of water from experiments on single levitated aerosol droplets., *Phys. Chem. Chem. Phys.*, 2014, **16**, 16677–83.

151 R. M. Power and J. P. Reid, Probing the micro-rheological properties of aerosol particles using optical tweezers., *Reports Prog. Phys.*, 2014, **77**, 074601.

152 B. J. Dennis-Smither, F. H. Marshall, R. E. H. Miles, T. C. Preston and J. P. Reid, Volatility and oxidative aging of aqueous maleic acid aerosol droplets and the dependence on relative humidity., *J. Phys. Chem. A*, 2014, **118**, 5680–91.

153 J. F. Davies, R. E. H. Miles, A. E. Haddrell and J. P. Reid, Temperature dependence of the vapor pressure and evaporation coefficient of supercooled water, *J. Geophys. Res. - Atmos.*, 2014, **119**, 10,931–10,940.

154 J. W. Lu, A. M. J. Rickards, J. S. Walker, K. J. Knox, R. E. H. Miles, J. P. Reid and R. Signorell, Timescales of water transport in viscous aerosol: measurements on sub-micron particles and dependence on conditioning history., *Phys. Chem. Chem. Phys.*, 2014, **16**, 9819–30.

155 C. Cai, D. J. Stewart, T. C. Preston, J. S. Walker, Y.-H. Zhang and J. P. Reid, A new approach to determine vapour pressures and hygroscopicities of aqueous aerosols containing semi-volatile organic compounds., *Phys. Chem. Chem. Phys.*, 2014, **16**, 3162–72.

156 T. C. Preston, B. J. Mason, J. P. Reid, D. Luckhaus and R. Signorell, Size-dependent position of a single aerosol droplet in a Bessel beam trap, *J. Opt.*, 2014, **16**, 025702.

157 Q.-N. Zhang, Y. Zhang, C. Cai, Y.-C. Guo, J. P. Reid and Y.-H. Zhang, In situ observation on the dynamic process of evaporation and crystallization of sodium nitrate droplets on a ZnSe substrate by FTIR-ATR., *J. Phys. Chem. A*, 2014, **118**, 2728–37.

158 B. J. Mason, J. S. Walker, J. P. Reid and A. J. Orr-Ewing, Deviations from plane-wave Mie scattering and precise retrieval of refractive index for a single spherical particle in an optical cavity., *J. Phys. Chem. A*, 2014, **118**, 2083–8.

159 A. E. Haddrell, J. F. Davies, R. E. H. Miles, J. P. Reid, L. A. Dailey and D. Murnane, Dynamics of aerosol size during inhalation: hygroscopic growth of commercial nebulizer formulations., *Int. J. Pharm.*, 2014, **463**, 50–61.

160 M. I. Cotterell, B. J. Mason, A. E. Carruthers, J. S. Walker, A. J. Orr-Ewing and J. P. Reid, Measurements of the evaporation and hygroscopic response of single fine-mode aerosol particles using a Bessel beam optical trap., *Phys. Chem. Chem. Phys.*, 2014, **16**, 2118–2128.

161 J. F. Davies, A. E. Haddrell, A. M. J. Rickards and J. P. Reid, Simultaneous Analysis of the Equilibrium Hygroscopicity and Water Transport Kinetics of Liquid Aerosol, *Anal. Chem.*, 2013, **85**, 5819–5826.

162 A. M. J. Rickards, R. E. H. Miles, J. F. Davies, F. H. Marshall and J. P. Reid, Measurements of the Sensitivity of Aerosol Hygroscopicity and the κ Parameter to the O/C Ratio., *J. Phys. Chem. A*, 2013, **117**, 14120–31.

163 J. F. Davies, R. E. H. Miles, A. E. Haddrell and J. P. Reid, Influence of organic films on the evaporation and condensation of water in aerosol., *Proc. Natl. Acad. Sci. U. S. A.*, 2013, **110**, 8807–8812.

164 T. C. Preston and J. P. Reid, Accurate and efficient determination of the radius, refractive index and dispersion of a weakly absorbing spherical particle using whispering gallery modes, *J. Opt. Soc. Am. B*, 2013, **30**, 2113–2122.

165 J. S. Walker, A. E. Carruthers, A. J. Orr-Ewing and J. P. Reid, Measurements of Light Extinction by Single Aerosol Particles, *J. Phys. Chem. Lett.*, 2013, **4**, 1748–1752.

166 A. E. Haddrell, G. Hargreaves, J. F. Davies and J. P. Reid, Control over hygroscopic growth of saline aqueous aerosol using Pluronic polymer additives, *Int. J. Pharm.*, 2013, **443**, 183–92.

167 R. M. Power, S. H. Simpson, J. P. Reid and A. J. Hudson, The Transition from Liquid to Solid-Like Behaviour in Ultrahigh Viscosity Aerosol Particles, *Chem. Sci.*, 2013, **4**, 2597–2604.

168 J. Julin, M. Shiraiwa, R. E. H. Miles, J. P. Reid, U. Poschl, I. Riipinen and U. Pöschl, Mass Accommodation of Water: Bridging the Gap Between Molecular Dynamics Simulations and Kinetic Condensation Models, *J. Phys. Chem. A*, 2013, **117**, 410–420.

169 N. S. Mistry, R. Power, S. Anand, D. McGloin, A. Almohamedi, M. Downie, J. P. Reid and A. J. Hudson, in *Proceedings of SPIE*, eds. K. Dholakia and G. C. Spalding, 2012, vol. 8458, pp. 84582B-84582B–7.

170 B. J. Dennis-Smither, R. E. H. Miles and J. P. Reid, Oxidative aging of mixed oleic acid/sodium chloride aerosol particles, *J. Geophys. Res.*, 2012, **117**, D20204.

171 B. J. Murray, a. E. Haddrell, S. Peppe, J. F. Davies, J. P. Reid, D. O'Sullivan, H. C. Price, R. Kumar, R. W. Saunders, J. M. C. Plane, N. S. Umo and T. W. Wilson, Glass formation and unusual hygroscopic growth of iodic acid solution droplets with relevance for iodine mediated particle formation in the marine boundary layer, *Atmos. Chem. Phys.*, 2012, **12**, 8575–8587.

172 R. Power, D. L. Bones and J. P. Reid, in *Proceedings of SPIE*, eds. K. Dholakia and G. C. Spalding, 2012, vol. 8458, pp. 845829-845829–10.

173 R. E. H. Miles, J. P. Reid and I. Riipinen, Comparison of Approaches for Measuring the Mass Accommodation Coefficient for the Condensation of Water and Sensitivities to Uncertainties in Thermophysical Properties, *J. Phys. Chem. A*, 2012, **116**, 10810–10825.

174 J. F. Davies, A. E. Haddrell and J. P. Reid, Time-Resolved Measurements of the Evaporation of Volatile Components from Single Aerosol Droplets, *Aerosol Sci. Technol.*, 2012, **46**, 666–677.

175 U. K. Krieger, C. Marcolli and J. P. Reid, Exploring the complexity of aerosol particle properties and processes using single particle techniques, *Chem. Soc. Rev.*, 2012, **41**, 6631–6662.

176 B. J. Dennis-Smither, K. L. Hanford, N.-O. A. Kwamena, R. E. H. Miles and J. P. Reid, Phase, Morphology, and Hygroscopicity of Mixed Oleic Acid/Sodium Chloride/Water Aerosol Particles before and after Ozonolysis, *J. Phys. Chem. A*, 2012, **116**, 6159–6168.

177 D. L. Bones, J. P. Reid, D. M. Lienhard and U. K. Krieger, Comparing the mechanism of water condensation and evaporation in glassy aerosol., *Proc. Natl. Acad. Sci. U. S. A.*, 2012, **109**, 11613–11618.

178 J. F. Davies, A. E. Haddrell, R. E. H. Miles, C. R. Bull and J. P. Reid, Bulk, Surface and Gas-Phase Limited Water Transport in Aerosol, *J. Phys. Chem. A*, 2012, **116**, 10987–98.

179 D. M. Lienhard, D. L. Bones, A. Zuend, U. K. Krieger, J. P. Reid and T. Peter, Measurements of Thermodynamic and Optical Properties of Selected Aqueous Organic and Organic−Inorganic Mixtures of Atmospheric Relevance, *J. Phys. Chem. A*, 2012, **116**, 9954–9968.

180 R. E. H. Miles, J. S. Walker, D. R. Burnham and J. P. Reid, Retrieval of the complex refractive index of aerosol droplets from optical tweezers measurements., *Phys. Chem. Chem. Phys.*, 2012, **14**, 3037–3047.

181 A. E. Carruthers, J. S. Walker, A. Casey, A. J. Orr-Ewing and J. P. Reid, Selection and characterization of aerosol particle size using a bessel beam optical trap for single particle analysis, *Phys. Chem. Chem. Phys.*, 2012, **14**, 6741–6748.

182 R. M. Power, J. P. Reid, S. Anand, D. Mcgloin, A. Almohammedi, N. S. Mistry, A. J. Hudson, A. Almohamedi and M. Downie, Observation of the binary coalescence and equilibration of micrometer-sized droplets of aqueous aerosol in a single-beam gradient-force optical trap, *J. Phys. Chem. A*, 2012, **116**, 8873−8884.

183 B. J. Mason, S.-J. King, R. E. H. Miles, K. M. Manfred, A. M. J. Rickards, J. Kim, J. P. Reid and A. J. Orr-Ewing, Comparison of the Accuracy of Aerosol Refractive Index Measurements from Single Particle and Ensemble Techniques, *J. Phys. Chem. A*, 2012, **116**, 8547–8556.

184 A. E. Haddrell, J. F. Davies, A. Yabushita and J. P. Reid, Accounting for Changes in Particle Charge, Dry Mass and Composition Occurring During Studies of Single Levitated Particles, *J. Phys. Chem. A*, 2012, **116**, 9941–9953.

185 J. S. Walker, J. B. Wills and J. P. Reid, Using laser light to trap and explore the cloud forming properties of single aerosol particles, *Weather*, 2011, **66**, 165–168.

186 D. Mellon, S. J. King, J. Kim, J. P. Reid and A. J. Orr-Ewing, Measurements of Extinction by Aerosol Particles in the Near-Infrared Using Continuous Wave Cavity Ring-Down Spectroscopy, *J. Phys. Chem. A*, 2011, **115**, 774–783.

187 G. Duxbury and J. P. Reid, Photodissociation of ND3 and ND2H at 193.3 nm: Symmetry dependence of the rotational distributions and vibrational excitation of the ND2 ((A)over-tilde(2)A(1)) fragment, *J. Mol. Spectrosc.*, 2011, **267**, 123–135.

188 R. E. H. Miles, S. Rudić, A. J. Orr-Ewing, J. P. Reid and S. Rudic, Sources of Error and Uncertainty in the Use of Cavity Ring Down Spectroscopy to Measure Aerosol Optical Properties, *Aerosol Sci. Technol.*, 2011, **45**, 1360–1375.

189 H.-J. J. Tong, J. P. Reid, D. L. Bones, B. P. Luo and U. K. Krieger, Measurements of the timescales for the mass transfer of water in glassy aerosol at low relative humidity and ambient temperature, *Atmos. Chem. Phys.*, 2011, **11**, 4739–4754.

190 J. P. Reid, B. J. Dennis-Smither, N.-O. A. Kwamena, R. E. H. Miles, K. L. Hanford and C. J. Homer, The morphology of aerosol particles consisting of hydrophobic and hydrophilic phases: hydrocarbons, alcohols and fatty acids as the hydrophobic component, *Phys. Chem. Chem. Phys.*, 2011, **13**, 15559–15572.

191 J. P. Reid, A. E. Haddrell, J. S. Walker, R. Power, D. L. Bones and J. F. Davies, in *Proceedings of SPIE*, ed. K. S. G. C. Dholakia, 2011, vol. 8097, p. 80970Z.

192 H.-J. Tong, Z.-G. Qian, J. P. Reid, Y.-H. Zhang and Q. Zheng-gang, High Temporal and Spatial Resolution Measurements of the Rapid Efflorescence of Sea Salt Droplets, *Acta Phys. -Chim. Sin.*, 2011, **27**, 2521–2527.

193 R. E. H. Miles, A. E. Carruthers and J. P. Reid, Novel Optical Techniques for Measurements of Light Extinction, Scattering and Absorption by Single Aerosol Particles, *Laser Photon. Rev.*, 2011, **5**, 534–552.

194 H. Meresman, A. J. Hudson and J. P. Reid, Spectroscopic characterization of aqueous microdroplets containing inorganic salts., *Analyst*, 2011, **136**, 3487–95.

195 K.-K. Li, F. Wang, G. Zeng, J. P. Reid and Y.-H. Zhang, Probing the time scale for bulk equilibration and mass transport of water in amorphous inorganic aerosol., *J. Phys. Chem. B*, 2011, **115**, 14397–403.

196 L. Treuel, J. R. Butler, G. Hargreaves and J. P. Reid, Probing the Equilibrium Size and Hydrogen Bonding Structure in Aqueous Aerosol Droplets, *Zeitschrift für Phys. Chemie*, 2010, **224**, 1185–1204.

197 A. E. Carruthers, J. P. Reid and A. J. Orr-Ewing, Optical trapping and sizing of aerosol droplets using counter-propagating Bessel beams, *Proc. SPIE*, 2010, **7762**, 77620V.

198 X. Guo, J. Shou, Y. Zhang and J. P. Reid, Micro-Raman analysis of association equilibria in supersaturated NaClO4 droplets., *Analyst*, 2010, **135**, 495–502.

199 F. D. Pope, H.-J. Tong, B. J. Dennis-smither, P. T. Griffiths, S. L. Clegg, J. P. Reid and R. A. Cox, Studies of single aerosol particles containing malonic acid, glutaric acid, and their mixtures with sodium chloride. II. Liquid-state vapor pressures of the acids., *J. Phys. Chem. A*, 2010, **114**, 10156–65.

200 H.-J. Tong, J.-Y. Yu, Y.-H. Zhang and J. P. Reid, Observation of Conformational Changes in 1-Propanol−Water Complexes by FTIR Spectroscopy, *J. Phys. Chem. A*, 2010, **114**, 6795–6802.

201 N.-O. A. Kwamena, J. Buajarern and J. P. Reid, Equilibrium Morphology of Mixed Organic/Inorganic/Aqueous Aerosol Droplets: Investigating the Effect of Relative Humidity and Surfactants, *J. Phys. Chem. A*, 2010, **114**, 5787–5795.

202 R. E. H. Miles, S. Rudić, A. J. Orr-Ewing and J. P. Reid, Measurements of the wavelength dependent extinction of aerosols by cavity ring down spectroscopy, *Phys. Chem. Chem. Phys.*, 2010, **12**, 3914.

203 K. J. Knox, D. R. Burnham, L. I. McCann, S. L. Murphy, D. McGloin, J. P. Reid, J. Kerry, Burnham, R. Daniel, McCann and I. Lowell, Observation of bistability of trapping position in aerosol optical tweezers, *J. Opt. Soc. Am. B - Opt. Phys.*, 2010, **27**, 582–591.

204 A. E. Carruthers, J. P. Reid and A. J. Orr-Ewing, Longitudinal optical trapping and sizing of aerosol droplets, *Opt. Express*, 2010, **18**, 14238–14244.

205 G. Hargreaves, N.-O. A. Kwamena, Y. H. Zhang, J. R. Butler, S. Rushworth, S. L. Clegg and J. P. Reid, Measurements of the equilibrium size of supersaturated aqueous sodium chloride droplets at low relative humidity using aerosol optical tweezers and an electrodynamic balance., *J. Phys. Chem. A*, 2010, **114**, 1806–15.

206 R. E. H. Miles, S. Rudic, A. J. Orr-Ewing, J. P. Reid and S. Rudić, Influence of Uncertainties in the Diameter and Refractive Index of Calibration Polystyrene Beads on the Retrieval of Aerosol Optical Properties Using Cavity Ring Down Spectroscopy, *J. Phys. Chem. A*, 2010, **114**, 7077–7084.

207 H.-J. Tong, J. P. Reid, J.-L. Dong and Y.-H. Zhang, Observation of the crystallization and supersaturation of mixed component NaNO3-Na2SO4 droplets by FTIR-ATR and Raman spectroscopy., *J. Phys. Chem. A*, 2010, **114**, 12237–43.

208 J. S. Walker, J. B. Wills, J. P. Reid, L.-Y. L. Wang, D. O. Topping, J. R. Butler and Y.-H. Y.-H. Zhang, A Direct Comparison of the Hygroscopic Properties of Ammonium Sulphate and Sodium Chloride Aerosol at Relative Humidities Approaching Saturation, *J. Phys. Chem. A*, 2010, **114**, 12682–12691.

209 R. E. H. Miles, K. J. Knox, J. P. Reid, A. M. C. Laurain and L. Mitchem, Measurements of Mass and Heat Transfer at a Liquid Water Surface During Condensation or Evaporation of a Sub-Nanometre Thickness Layer of Water, *Phys. Rev. Lett.*, 2010, **105**, 116101.

210 K. J. Knox, R. Symes and J. P. Reid, Fluorescence spectroscopy and signalling from optically-tweezed aerosol droplets, *Chem. Phys. Lett.*, 2010, **487**, 165–170.

211 A. M. C. Laurain and J. P. Reid, Characterizing Internally Mixed Insoluble Organic Inclusions in Aqueous Aerosol Droplets and Their Influence on Light Absorption, *J. Phys. Chem. A*, 2009, **113**, 7039–7047.

212 J. Reid, *Aerosols*, 2009.

213 C. J. Homer, X. M. Jiang, T. L. Ward, C. J. Brinker and J. P. Reid, Measurements and simulations of the near-surface composition of evaporating ethanol-water droplets, *Phys. Chem. Chem. Phys.*, 2009, **11**, 7780–7791.

214 J. R. Butler, J. B. Wills, L. Mitchem, D. R. Burnham, D. McGloin and J. P. Reid, Spectroscopic characterisation and manipulation of arrays of sub-picolitre aerosol droplets, *Lab Chip*, 2009, **9**, 521–528.

215 J. B. Wills, K. J. Knox and J. P. Reid, Optical control and characterisation of aerosol, *Chem. Phys. Lett.*, 2009, **481**, 153–165.

216 H. Meresman, J. B. Wills, M. Summers, D. McGloin and J. P. Reid, Manipulation and characterisation of accumulation and coarse mode aerosol particles using a Bessel beam trap, *Phys. Chem. Chem. Phys.*, 2009, **11**, 11333–11339.

217 C. Heinisch, J. B. Wills, J. P. Reid, T. Tschudi and C. Tropea, Temperature measurement of single evaporating water droplets in a nitrogen flow using spontaneous Raman scattering, *Phys. Chem. Chem. Phys.*, 2009, **11**, 9720–9728.

218 R. E. H. Miles, M. Guillon, L. Mitchem, D. McGloin and J. P. Reid, The influence of resonant absorption and heating on the equilibrium size of aqueous-solute aerosol droplets, *Phys. Chem. Chem. Phys.*, 2009, **11**, 7312–7317.

219 J. B. Wills, J. R. Butler, J. Palmer and J. P. Reid, Using optical landscapes to control, direct and isolate aerosol particles, *Phys. Chem. Chem. Phys.*, 2009, **11**, 8015–8020.

220 M. Guillon, R. E. H. Miles, J. P. Reid and D. McGloin, Thermo-optical resonance locking of an optically trapped salt-water microdroplet, *New J. Phys.*, 2009, **11**, 103041.

221 J. P. J. P. Reid, Particle Levitation and Laboratory Scattering, *J. Quant. Spectrosc. Radiat. Transf.*, 2009, **110**, 1293–1306.

222 K. L. Hanford, L. Mitchem, J. P. Reid, S. L. Clegg, D. O. Topping and G. B. McFiggans, Comparative thermodynamic studies of aqueous glutaric acid, ammonium sulfate and sodium chloride aerosol at high humidity, *J. Phys. Chem. A*, 2008, **112**, 9413–9422.

223 J. P. Reid, in *Proceedings of SPIE*, 2008, vol. 7038, pp. O381-O381 435.

224 K. J. Knox and J. P. Reid, Ultrasensitive Absorption Spectroscopy of Optically-Trapped Aerosol Droplets, *J. Phys. Chem. A*, 2008, **112**, 10439–10441.

225 L. Mitchem and J. P. Reid, Optical manipulation and characterisation of aerosol particles using a single-beam gradient force optical trap, *Chem. Soc. Rev.*, 2008, **37**, 756–769.

226 J. R. Butler, L. Mitchem, K. L. Hanford, L. Treuel and J. P. Reid, In situ comparative measurements of the properties of aerosol droplets of different chemical composition, *Faraday Discuss.*, 2008, **137**, 351–366.

227 C. R. Howle, C. J. Homer, R. J. Hopkins and J. P. Reid, Probing the evaporation of ternary ethanol-methanol-water droplets by cavity enhanced Raman scattering., *Phys. Chem. Chem. Phys.*, 2007, **9**, 5344–52.

228 T. F. Kahan, J. P. Reid and D. J. Donaldson, Spectroscopic probes of the quasi-liquid layer on ice, *J. Phys. Chem. A*, 2007, **111**, 11006–11012.

229 J. Buajarern, L. Mitchem and J. P. Reid, Manipulation and characterization of aqueous sodium dodecyl sulfate/sodium chloride aerosol particles, *J. Phys. Chem. A*, 2007, **111**, 13038–13045.

230 J. Buajarern, L. Mitchem and J. P. Reid, Characterizing the formation of organic layers on the surface of inorganic/aqueous aerosols by Raman spectroscopy, *J. Phys. Chem. A*, 2007, **111**, 11852–11859.

231 J. P. Reid, H. Meresman, L. Mitchem and R. Symes, Spectroscopic studies of the size and composition of single aerosol droplets, *Int. Rev. Phys. Chem.*, 2007, **26**, 139–192.

232 J. Buajarern, L. Mitchem and J. P. Reid, Characterizing multiphase Organic/Inorganic/Aqueous aerosol droplets, *J. Phys. Chem. A*, 2007, **111**, 9054–9061.

233 K. J. Knox, J. P. Reid, K. L. Hanford, A. J. Hudson and L. Mitchem, Direct measurements of the axial displacement and evolving size of optically trapped aerosol droplets, *J. Opt. A - Pure Appl. Opt.*, 2007, **9**, S180–S188.

234 S. Rudic, R. E. H. Miles, A. J. Orr-Ewing and J. P. Reid, Optical properties of micrometer size water droplets studied by cavity ringdown spectroscopy, *Appl. Opt.*, 2007, **46**, 6142–6150.

235 G. Duxbury and J. P. Reid, Renner-Teller interaction, high angular momentum states and spin-orbit interaction in the electronic spectrum of ND2, *Mol. Phys.*, 2007, **105**, 1603–1618.

236 R. Symes, H. Meresman, R. M. Sayer and J. P. Reid, A quantitative demonstration of the enhancement of cavity enhanced Raman scattering by broad band external laser seeding, *Chem. Phys. Lett.*, 2006, **419**, 545–549.

237 M. D. Summers, J. P. Reid and D. McGloin, Optical guiding of aerosol droplets, *Opt. Express*, 2006, **14**, 6373–6380.

238 L. Mitchem, R. J. Hopkins, J. Buajarern, A. D. Ward and J. P. Reid, Comparative measurements of aerosol droplet growth, *Chem. Phys. Lett.*, 2006, **432**, 362–366.

239 R. Symes and J. P. Reid, Determining the composition of aqueous microdroplets with broad-band cavity enhanced Raman scattering, *Phys. Chem. Chem. Phys.*, 2006, **8**, 293–302.

240 R. J. Hopkins, C. R. Howle and J. P. Reid, Measuring temperature gradients in evaporating multicomponent alcohol/water droplets, *Phys. Chem. Chem. Phys.*, 2006, **8**, 2879–2888.

241 J. P. Reid and L. Mitchem, Laser probing of single-aerosol droplet dynamics, *Annu. Rev. Phys.*

Chem., 2006, **57**, 245–271.

242 R. J. Hopkins and J. P. Reid, A comparative study of the mass and heat transfer dynamics of evaporating ethanol/water, methanol/water, and 1-propanol/water aerosol droplets, *J. Phys. Chem. B*, 2006, **110**, 3239–3249.

243 J. Buajarern, L. Mitchem, A. D. Ward, N. H. Nahler, D. McGloin and J. P. Reid, Controlling and characterizing the coagulation of liquid aerosol droplets, *J. Chem. Phys.*, 2006, **125**.

244 L. Mitchem, J. Buajarern, A. D. Ward and J. P. Reid, A strategy for characterizing the mixing state of immiscible aerosol components and the formation of multiphase aerosol particles through coagulation, *J. Phys. Chem. B*, 2006, **110**, 13700–13703.

245 L. Mitchem, J. Buajarern, R. J. Hopkins, A. D. Ward, R. J. J. Gilham, R. L. Johnston and J. P. Reid, Spectroscopy of growing and evaporating water droplets: Exploring the variation in equilibrium droplet size with relative humidity, *J. Phys. Chem. A*, 2006, **110**, 8116–8125.

246 R. Symes, R. J. J. Gilham, R. M. Sayer and J. P. Reid, An investigation of the factors influencing the detection sensitivity of cavity enhanced Raman scattering for probing aqueous binary aerosol droplets, *Phys. Chem. Chem. Phys.*, 2005, **7**, 1414–1422.

247 R. J. Hopkins and J. P. Reid, Evaporation of Ethanol/Water Droplets: Examining the Temporal Evolution of Droplet Size, Composition and Temperature, *J. Phys. Chem. A*, 2005, **109**, 7923–7931.

248 J. P. Reid, L. Mitchem, R. J. Hopkins and A. D. Ward, in *Proceedings of SPIE*, San Diego, 2005, p. 593015.

249 R. Symes, R. M. Sayer and J. P. Reid, Cavity enhanced droplet spectroscopy: Principles, perspectives and prospects, *Phys. Chem. Chem. Phys.*, 2004, **6**, 474–487.

250 R. J. Hopkins, L. Mitchem, A. D. Ward and J. P. Reid, Control and characterisation of a single aerosol droplet in a single-beam gradient-force optical trap, *Phys. Chem. Chem. Phys.*, 2004, **6**, 4924–4927.

251 R. M. Sayer, R. D. B. Gatherer, R. J. J. Gilham and J. P. Reid, Determination and validation of water droplet size distributions probed by cavity enhanced Raman scattering, *Phys. Chem. Chem. Phys.*, 2003, **5**, 3732–3739.

252 R. J. Hopkins, R. Symes, R. M. Sayer and J. P. Reid, Determination of the size and composition of multicomponent ethanol/water droplets by cavity-enhanced Raman scattering, *Chem. Phys. Lett.*, 2003, **380**, 665–672.

253 R. M. Sayer, R. D. B. Gatherer and J. P. Reid, A laser induced fluorescence technique for determining the pH of water droplets and probing uptake dynamics, *Phys. Chem. Chem. Phys.*, 2003, **5**, 3740–3747.

254 J. P. Reid and R. M. Sayer, Heterogeneous atmospheric aerosol chemistry: laboratory studies of chemistry on water droplets, *Chem. Soc. Rev.*, 2003, **32**, 70–79.

255 R. D. B. Gatherer, R. M. Sayer and J. P. Reid, An optical method for determining size distributions of water droplets, *Chem. Phys. Lett.*, 2002, **366**, 34–41.

256 J. P. Reid and R. M. Sayer, Chemistry in the clouds: The role of aerosols in atmospheric chemistryle, *Sci. Prog.*, 2002, **85**, 263–296.

257 R. D. B. Gatherer and J. P. Reid, Determining the pH of 15-60 mu m radius water droplets: a direct fluorescence probe, *Chem. Phys. Lett.*, 2002, **357**, 153–160.

258 T. P. Marcy, J. P. Reid, C. X. W. Qian and S. R. Leone, Addition-insertion-elimination reactions of O(3P) with halogenated iodoalkanes producing HF(v) and HCl(v), *J. Chem. Phys.*, 2001, **114**, 2251.

259 R. Kobayashi, R. D. Amos, J. P. Reid, H. M. Quiney and C. J. S. M. Simpson, Coupled cluster ab initio potential energy surfaces for CO...He and CO...H2, *Mol. Phys.*, 2000, **98**, 1995–2005.

260 J. P. Reid, R. A. Loomis and S. R. Leone, The effect of parent zero-point motion on the ND2(A) rotational state distribution in the 193.3 nm photolysis of ND3, *Chem. Phys. Lett.*, 2000, **324**, 240–248.

261 J. P. Reid, T. P. Marcy, S. Kuehn and S. R. Leone, The direct production of CO(v=1-9) in the reaction of O(3P) with the ethyl radical, *J. Chem. Phys.*, 2000, **113**, 4572–4580.

262 J. P. Reid, R. A. Loomis and S. R. Leone, Competition between N-H and N-D bond cleavage in the photodissociation of NH2D and ND2H, *J. Phys. Chem. A*, 2000, **104**, 10139–10149.

263 J. P. Reid, R. A. Loomis and S. R. Leone, Characterization of dynamical product-state distributions by spectral extended cross-correlation: Vibrational dynamics in the photofragmentation of NH2D and ND2H, *J. Chem. Phys.*, 2000, **112**, 3181–3191.

264 J. P. Reid, C. X. W. Qian and S. R. Leone, Probing the cyclic transition state in the reaction O(3P) plus alkyl iodides to form HOI: electronic, steric and thermodynamic factors influencing the reaction pathway, *Phys. Chem. Chem. Phys.*, 2000, **2**, 853–860.

265 R. A. Loomis, J. P. Reid and S. R. Leone, Photofragmentation of ammonia at 193.3 nm: Bimodal rotational distributions and vibrational excitation of NH2(A), *J. Chem. Phys.*, 2000, **112**, 658–669.

266 M. L. Turnidge, J. P. Reid, P. W. Barnes and C. J. S. M. Simpson, Vibrational energy transfer between the isotopomers of carbon monoxide at low temperatures, *J. Chem. Phys.*, 1998, **108**, 485–491.

267 J. P. Reid, C. J. S. M. Simpson and H. M. Quiney, A new He-CO interaction energy surface with vibrational coordinate dependence 2. The vibrational deactivation of CO(v=1) by inelastic collisions with 3He and 4He, *J. Chem. Phys.*, 1997, **107**, 9929–9934.

268 J. P. Reid, P. W. Barnes and C. J. S. M. Simpson, The influence of the attractive well on near and non-resonant vibrational energy transfer in the gas phase: CO(v=1) deactivated by methane deuteroisomers, *Chem. Phys. Lett.*, 1997, **268**, 150–156.

269 J. P. Reid, C. J. S. M. Simpson and H. M. Quiney, The vibrational deactivation of CO(v=1) by inelastic collisions with H2 and D2, *J. Chem. Phys.*, 1997, **106**, 4931–4944.

270 J. P. Reid and C. J. S. M. Simpson, The influence of the attractive well on near-resonant vibrational energy transfer in the gas phase: the importance of third body collisions, *Chem. Phys. Lett.*, 1997, **280**, 367–374.

271 J. P. Reid, A. J. Thakkar, P. W. Barnes, E. F. Archibong, H. M. Quiney and C. J. S. M. Simpson, Vibrational deactivation of N2(v=1) by inelastic collisions with 3He and 4He: An experimental and a theoretical study, *J. Chem. Phys.*, 1997, **107**, 2329–2339.

272 J. P. Reid, P. W. Barnes and C. J. S. M. Simpson, The vibrational deactivation of N2(v = 1) by H2 and HD at low temperatures, *Chem. Phys. Lett.*, 1997, **280**, 359–366.

273 J. P. Reid, C. J. S. M. Simpson and H. M. Quiney, Vibrational deactivation of N2 by inelastic collisions with 3He and 4He, *Chem. Phys. Lett.*, 1996, **256**, 531–535.

274 C. J. S. M. Simpson, M. L. Turnidge and J. P. Reid, Vibrational energy transfer between molecules dissolved in cryogenic liquids, *J. Mol. Liq.*, 1996, **70**, 125–131.

275 J. P. Reid, C. J. S. M. Simpson and H. M. Quiney, Vibrational Deactivation of CO(v=1) by Inelastic-Collisions with 3He and 4He at Low Impact Energies, *Chem. Phys. Lett.*, 1995, **246**, 562–566.

276 G. J. Wilson, M. L. Turnidge, J. P. Reid and C. J. S. M. Simpson, Vibrational-Energy Transfer between Isotopes of CO and Isotopes of CO2 in the Gas-Phase and in Liquid Kr Solution, *J. Chem. Phys.*, 1995, **102**, 1192–1198.

277 J. P. Reid, C. J. S. M. Simpson, H. M. Quiney and J. M. Hutson, Vibrational-Relaxation of CO(v=1) by Inelastic-Collisions with 3He and 4He, *J. Chem. Phys.*, 1995, **103**, 2528–2537.