

CURRICULUM VITAE

Bryan R. Bzdek

NERC Independent Research Fellow
School of Chemistry, University of Bristol
Cantock's Close, Bristol, BS8 1TS, United Kingdom

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Citizenship: US citizen

Appointments:

- 09/2017 – present Natural Environment Research Council Independent Research Fellow, University of Bristol, UK
- 08/2014 – 08/2017 Postdoctoral Research Associate, School of Chemistry, University of Bristol, UK (Adviser: Jonathan P. Reid)
- 09/2011 – 08/2014 EPA STAR Graduate Research Fellow, University of Delaware
- 06/2011 – 09/2011 ACS Division of Analytical Chemistry Summer Graduate Fellow, sponsored by the Society for Analytical Chemists of Pittsburgh, University of Delaware
- 08/2008 – 06/2011 Center for Critical Zone Research Graduate Fellow, University of Delaware

Education:

- Ph.D., Analytical Chemistry (August 2014)
University of Delaware, Newark, Delaware
Cumulative GPA: 4.00/4.00
Dissertation Title: Chemical Mechanisms Governing Atmospheric New Particle Formation
Adviser: Murray V. Johnston
- B.S., summa cum laude with departmental honors (May 2008)
Bucknell University, Lewisburg, Pennsylvania
Major: Chemistry; Minors: Music (Piano), French
Cumulative GPA: 3.95/4.00
Honors Thesis Title: Comparison of the Si-O Stretching Region of Unaltered and Reduced Uley Nontronites by Polarized ATR-FTIR
Adviser: Molly M. McGuire

Honors and Awards:

- 2017 Sheldon K. Friedlander Award from the American Association for Aerosol Research
- 2017 NERC Independent Research Fellowship (2017 – 2022)
- 2017 STEM for Britain participant
- 2015 Best Poster Award, European Aerosol Conference, Milan, Italy
- 2015 Early Career Scientist Travel Award from The Aerosol Society to the 249th ACS National Meeting, Denver, CO
- 2013 First Prize, 40th Annual Joel L. Silver Award Symposium
- 2013 47th Annual Glenn S. Skinner Memorial Award
- 2013 NSF Travel Award to the 19th International Conference on Nucleation and Atmospheric Aerosols, Fort Collins, CO
- 2012 Student Travel Award to AAAR 31st Annual Conference, Minneapolis, MN
- 2011 Critical Zone Exploration Network Travel Award to participate in field campaign in Finland
- 2010 Department of Energy Office of Science Graduate Fellowship Finalist
- 2010 NSF Graduate Research Fellowship Honorable Mention
- 2009 Delaware Valley Mass Spectrometry Discussion Group ASMS Student Travel Award to the 57th ASMS Conference on Mass Spectrometry, Philadelphia, PA
- 2008 Phi Beta Kappa
- 2008 Top Undergraduate Poster, Division of Geochemistry, 235th ACS Meeting, New Orleans, LA
- 2008 Clay Minerals Society Student Travel Grant to the 235th ACS Meeting, New Orleans, LA
- 2008 Undergraduate Award in Environmental Chemistry

Professional Affiliations: The Aerosol Society (UK), American Association for Aerosol Research, American Chemical Society, American Geophysical Union, American Society for Mass Spectrometry, Phi Beta Kappa, Royal Society of Chemistry

Publications in Preparation/Submitted:

1. **B. R. Bzdek**, J. Malila, N. L. Prisle, and J. P. Reid, "Size Dependent Surface Tension of Aerosol Droplets," in preparation.

Peer-Reviewed Publications (* = corresponding author):

1. R. E. H. Miles, M. Glerum, H. C. Boyer, J. S. Walker, C. S. Dutcher, and **B. R. Bzdek***, "Surface Tensions of Picoliter Droplets with Sub-Millisecond Surface Age," *Journal of Physical Chemistry A*, **2019**, *123*, 3021-3029. (**Young Scientist Virtual Special Issue**)
2. **B. R. Bzdek***, J. S. Walker, "Vibrational Spectroscopy of Individual Aerosol Droplets by Optical Tweezers," *Spectroscopy*, **2019**, *34*, 22-31.
3. 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," *Journal of Geophysical Research – Atmospheres*, **2018**, *123*, 6469-6486.
4. **B. R. Bzdek*** and J. P. Reid, "Aerosol Microphysics: From Molecules to the Chemical Physics of Aerosols," *Journal of Chemical Physics*, **2017**, *147*, 220901, doi: 10.1063/1.5002641. (**Cover Article**)
5. **B. R. Bzdek**, J. W. DePalma, and M. V. Johnston, "Mechanisms of Atmospherically Relevant Cluster Growth," *Accounts of Chemical Research*, **2017**, *50*, 1965-1975.
6. H. C. Boyer, **B. R. Bzdek**, J. P. Reid, and C. S. Dutcher, "Statistical Thermodynamic Model for Surface Tension of Organic and Inorganic Aqueous Mixtures," *Journal of Physical Chemistry A*, **2017**, *121*, 198-205.
7. 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," *Analytical Chemistry*, **2017**, *89*, 2345–2352.
8. M. I. Cotterell, R. E. Willoughby, **B. R. Bzdek**, A. J. Orr-Ewing, and J. P. Reid, "A Complete Parameterization of the Relative Humidity and Wavelength Dependence of the Refractive Index of Hygroscopic Inorganic Aerosol Particles," *Atmospheric Chemistry and Physics*, **2017**, *17*, 9837-9851.
9. A. Marsh, G. Rovelli, Y. C. Song, K. L. Pereira, R. E. Willoughby, **B. R. Bzdek**, J. F. Hamilton, A. J. Orr-Ewing, D. O. Topping, and J. P. Reid, "Accurate Representations of the Physicochemical Properties of Atmospheric Aerosols: When are Laboratory Measurements of Value?" *Faraday Discussions*, **2017**, *200*, 639-661.
10. **B. R. Bzdek**, R. M. Power, S. H. Simpson, J. P. Reid, and C. P. Royall, "Precise, Contactless Measurements of the Surface Tension and Viscosity of Picolitre Aerosol Droplets," *Chemical Science*, **2016**, *7*, 274-295.
11. **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," *Journal of Chemical Physics*, **2016**, *145*, 054502, doi: 10.1063/1.4959901.
12. Y. C. Song, A. E. Haddrell, **B. R. Bzdek**, J. P. Reid, T. Bannan, D. O. Topping, C. Percival, and C. Cai, "Measurements and Predictions of Binary Component Aerosol Particle Viscosity," *Journal of Physical Chemistry A*, **2016**, *120*, 8123-8137.
13. **B. R. Bzdek**, A. J. Horan, M. R. Pennington, N. J. Janecek, J. Baek, C. O. Stanier, and M. V. Johnston, "Silicon is a Frequent Component of Atmospheric Nanoparticles," *Environmental Science and Technology*, **2014**, *48*, 11137-11145. (**Highlighted in C&E News, 7 October 2014**)
14. **B. R. Bzdek**, M. J. Lawler, A. J. Horan, M. R. Pennington, J. W. DePalma, J. Zhao, J. N. Smith, and M. V. Johnston, "Molecular Constraints on Particle Growth during New Particle Formation," *Geophysical Research Letters*, **2014**, *41*, 6045-6054, doi: 10.1002/2014GL060160.
15. J. W. DePalma, **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Activation Barriers in the Growth of Molecular Clusters Containing Sulfuric Acid and Ammonia," *Journal of Physical Chemistry A*, **2014**, *118*, 11547-11554.

16. **B. R. Bzdek**, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation Energetics of Clusters Relevant to Atmospheric New Particle Formation," *Journal of the American Chemical Society*, **2013**, *135*, 3276-3285.
17. **B. R. Bzdek**, A. J. Horan, M. R. Pennington, J. W. DePalma, J. Zhao, C. N. Jen, D. R. Hanson, J. N. Smith, P. H. McMurry, and M. V. Johnston, "Quantitative and Time-Resolved Nanoparticle Composition Measurements during New Particle Formation," *Faraday Discussions*, **2013**, *165*, 25-43.
18. M. R. Pennington, **B. R. Bzdek**, J. W. DePalma, J. N. Smith, A.-M. Kortelainen, L. Hildebrandt Ruiz, T. Petäjä, M. Kulmala, D. R. Worsnop, and M. V. Johnston, "Identification and Quantification of Particle Growth Channels during New Particle Formation," *Atmospheric Chemistry and Physics*, **2013**, *13*, 10215-10225.
19. **B. R. Bzdek**, M. R. Pennington, and M. V. Johnston, "Single Particle Chemical Analysis of Ambient Ultrafine Aerosol: A Review," *Journal of Aerosol Science*, **2012**, *52*, 109-120.
20. **B. R. Bzdek**, C. A. Zordan, M. R. Pennington, G. W. Luther III, and M. V. Johnston, "Quantitative Assessment of the Sulfuric Acid Contribution to New Particle Growth," *Environmental Science and Technology*, **2012**, *46*, 4365-4373.
21. J. W. DePalma, **B. R. Bzdek**, D. J. Doren, and M. V. Johnston, "Structure and Energetics of Nanometer Size Clusters of Sulfuric Acid with Ammonia and Dimethylamine," *Journal of Physical Chemistry A*, **2012**, *116*, 1030-1040.
22. M. R. Pennington, J. P. Klems, **B. R. Bzdek**, and M. V. Johnston, "Nanoparticle Chemical Composition and Diurnal Dependence at the CalNex Los Angeles Ground Site," *Journal of Geophysical Research – Atmospheres*, **2012**, *117*, D00V10, doi: 10.1029/2011JD017061.
23. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Amine Reactivity with Charged Sulfuric Acid Clusters," *Atmospheric Chemistry and Physics*, **2011**, *11*, 8735-8743.
24. **B. R. Bzdek**, C. A. Zordan, G. W. Luther III, and M. V. Johnston, "Nanoparticle Chemical Composition during New Particle Formation," *Aerosol Science and Technology*, **2011**, *45*, 1041-1048.
25. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Reactivity of Methanesulfonic Acid Salt Clusters Relevant to Marine Air," *Journal of Geophysical Research – Atmospheres*, **2011**, *116*, D03301, doi: 10.1029/2010JD015217.
26. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Size-dependent Reactions of Ammonium Bisulfate Clusters with Dimethylamine," *Journal of Physical Chemistry A*, **2010**, *114*, 11638-11644.
27. **B. R. Bzdek** and M. V. Johnston, "New Particle Formation and Growth in the Troposphere," *Analytical Chemistry*, **2010**, *82*, 7871-7878.
28. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Amine Exchange into Ammonium Bisulfate and Ammonium Nitrate Nuclei," *Atmospheric Chemistry and Physics*, **2010**, *10*, 3495-3503.
29. **B. R. Bzdek** and M. M. McGuire, "Polarized ATR-FTIR Investigation of Fe Reduction in the Uley Nontronites," *Clays and Clay Minerals*, **2009**, *57*, 227-233.

Recent Collaborators:

Name	Country	Institution/University	Department	Output
Cari S. Dutcher	USA	Minnesota	Mechanical Eng.	2 publications (JPCA)
Jacqueline F. Hamilton	UK	York	Chemistry	1 publication (FD)
David R. Hanson	USA	Augsburg	Chemistry	1 publication (FD), 1 field campaign
Richard J. A. Hill	UK	Nottingham	Physics	1 week research visit
Rebecca J. Hopkins	UK	DSTL		1 publication (AC)
Andrew J. Hudson	UK	Leicester	Chemistry	1 publication (JCP)
Markku Kulmala	Finland	Helsinki	Physics	1 publication (ACP), 1 field campaign
Julia Laskin	USA	Purdue	Chemistry	1 publication (JACS), 2 week research visit
George W. Luther	USA	Delaware	Marine Studies	2 publications (ES&T, AS&T)
Peter H. McMurry	USA	Minnesota	Mechanical Eng.	1 publication (FD), 1 field campaign

Andrew J. Orr-Ewing	UK	Bristol	Chemistry	3 publications (FD, ACP, JGR)
Nønne L. Prisle	Finland	Oulu	Nano./Molec. Systems Res. Unit	1 publication in prep.
Stephen H. Simpson	Czech Republic	ISI of the ASCR		1 publication (CS)
James N. Smith	USA	California, Irvine	Chemistry	3 publications (GRL, ACP, FD), 2 field campaigns
James E. Sprittles	UK	Warwick	Mathematics	1 publication (JCP)
Charles O. Stanier	USA	Iowa	Chemical/ Biochemical Eng.	1 publication (ES&T)
David O. Topping	UK	Manchester	Earth/Environ. Sciences	2 publications (JPCA, FD), 3 week research visit
Douglas R. Worsnop	Finland/ USA	Helsinki/Aerodyne	Physics	1 publication (ACP), 1 field campaign

Invited Presentations, Seminars, and Colloquia:

1. “Quantitative, Contactless Measurements of Picolitre Droplet Surface Tension,” Pacific Conference on Spectroscopy and Dynamics, San Diego, California, January 2019.
2. “Quantitative, Contactless Measurements of Picolitre Droplet Surface Tension,” University of California, Riverside, Riverside, California, January 2019.
3. “The Role of Surfactants in Cloud Droplet Activation,” Mathematics for Atmospheric-Biospheric Science Workshop, Hyytiälä, Finland, September 2018.
4. “Atmospheric Nanoparticle Formation, Growth, and Activation to Cloud Droplets,” University of Bristol, Bristol, United Kingdom, November 2017.
5. “Quantification of the Partitioning Behaviour of Surfactants in Picolitre Droplets,” Workshop on Droplet Coalescence, Durham University, Durham, United Kingdom, October 2017.
6. “From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension,” Pennsylvania State University, State College, PA, January 2017.
7. “From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension,” University of Georgia, Athens, GA, January 2017.
8. “From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension,” University of Illinois at Urbana–Champaign, Champaign, IL, January 2017.
9. “From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension,” University of Maryland, College Park, College Park, MD, January 2017.
10. “From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension,” The Ohio State University, Columbus, OH, January 2017.
11. “From Nanoparticles to Cloud Droplets: Measurements of Aerosol Composition, Reactivity, and Surface Tension,” Louisiana State University, Baton Rouge, LA, December 2016.
12. “The Formation and Growth of Ambient Nanoparticles,” University of Bristol, Bristol, United Kingdom, March 2014.
13. “The Formation and Growth of Ambient Nanoparticles,” University of Toronto, Toronto, Canada, October 2013.
14. “Particles in the Air We Breathe: Determining the Composition and Reactivity of Nanoparticles Relevant to Climate,” College of Saint Rose, Albany, NY, November 2012.
15. “Composition and Reactivity of Atmospherically-relevant Nanoparticles by Mass Spectrometry,” Bucknell University, Lewisburg, PA, April 2012.
16. “Composition and Reactivity of Atmospherically-relevant Nanoparticles by Mass Spectrometry,” Pittcon Conference and Expo, Orlando, FL, March 2012.

Conference Platform Presentations:

1. **B. R. Bzdek**, J. Malila, N. L. Prisle, and J. P. Reid, “Measurements and Modelling of Surfactant Coated Aerosol Particles”, Xth International Aerosol Conference, St. Louis, MO, September 2018.
2. **B. R. Bzdek** and J. P. Reid, “Quantification of the Partitioning Behaviour of Surfactants in Picolitre Droplets,” AAAR 36th Annual Conference, Raleigh, NC, October 2017.

3. **B. R. Bzdek**, F. H. Marshall, Y.-C. Song, A. E. Haddrell, and J. P. Reid, "Surface Tensions, Viscosities, and Diffusion Constants in Mixed Component Single Aerosol Particles," Towards a Molecular Understanding of Atmospheric Aerosol, Chaminade, CA, August 2016.
4. **B. R. Bzdek**, F. H. Marshall, Y.-C. Song, A. E. Haddrell, and J. P. Reid, "Surface Tensions, Viscosities, and Diffusion Constants in Mixed Component Single Aerosol Particles," European Geophysical Union General Assembly 2016, Vienna, Austria, April 2016.
5. **B. R. Bzdek**, R. M. Power, and J. P. Reid, "Direct and Quantitative Measurement of the Surface Tension of Airborne Microdroplets," 249th ACS National Meeting, Denver, CO, March 2015.
6. **B. R. Bzdek**, A. J. Horan, M. R. Pennington, and M. V. Johnston, "Silicon is a Frequent Component of Atmospheric Nanoparticle," Annual UK Aerosol Society Conference, Birmingham, United Kingdom, November 2014.
7. **B. R. Bzdek**, M. R. Pennington, A. J. Horan, C. A. Zordan, and M. V. Johnston, "Silicon is a Nearly Ubiquitous Component of Ambient Nanoparticles," 62nd ASMS Conference on Mass Spectrometry and Allied Topics, Baltimore, MD, June 2014.
8. **B. R. Bzdek**, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation and Growth Energetics of Clusters Relevant to Atmospheric New Particle Formation," AGU Fall Meeting, San Francisco, CA, December 2013.
9. **B. R. Bzdek**, A. J. Horan, M. R. Pennington, J. W. DePalma, and M. V. Johnston, "Quantitative and Time-resolved Nanoparticle Composition Measurements during New Particle Formation," AAAR 32nd Annual Conference, Portland, Oregon, October 2013.
10. **B. R. Bzdek**, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation and Growth Energetics of Clusters Relevant to New Particle Formation," 19th International Conference on Nucleation and Atmospheric Aerosols, Fort Collins, CO, June 2013.
11. **B. R. Bzdek**, M. R. Pennington, and M. V. Johnston, "Nanoparticle Chemical Composition during New Particle Formation," AAAR 31st Annual Conference, Minneapolis, MN, October 2012.
12. **B. R. Bzdek**, A. J. Horan, M. R. Pennington, and M. V. Johnston, "Particle Size-dependent Incorporation of Dimethylamine into Ammonium Sulfate and Nitrate Nanoparticles," AAAR 31st Annual Conference, Minneapolis, MN, October 2012.
13. **B. R. Bzdek**, J. W. DePalma, J. Laskin, D. P. Ridge, and M. V. Johnston, "Composition, Reactivity and Energetics of Sulphuric Acid Clusters Containing Ammonia and Amines," European Aerosol Conference, Granada, Spain, September 2012.
14. **B. R. Bzdek**, M. R. Pennington, C. A. Zordan, and M. V. Johnston, "Chemical Composition of Newly Formed Nanoparticles in Diverse Environments by the Nano Aerosol Mass Spectrometer," AGU Fall Meeting, San Francisco, CA, December 2011.
15. **B. R. Bzdek**, J. W. DePalma, D. P. Ridge, and M. V. Johnston, "Effect of Particle Size and Charge on the Reactivity of Sulfuric Acid Clusters with Ammonia and Amines," AAAR 30th Annual Conference, Orlando, FL, October 2011.
16. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Size-dependent Reactions of Ammonium Bisulfate Nuclei," AAAR 29th Annual Conference, Portland, OR, October 2010.
17. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Composition and Reactivity of Sub-3 nm Ammonium/Aminium Sulfate Clusters," International Aerosol Conference, Helsinki, Finland, September 2010.
18. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Aliphatic Amines Efficiently Displace Ammonia in Ammonium Sulfate Clusters," AAAR 28th Annual Conference, Minneapolis, MN, October 2009.

Conference Poster Presentations:

1. **B. R. Bzdek** and L. Lalemi, "Resolving the Factors Governing Particle Phase Photochemistry", Xth International Aerosol Conference, St. Louis, MO, September 2018.
2. **B. R. Bzdek**, J. Malila, N. L. Prisle, and J. P. Reid, "Measurements and Modelling of Surfactant Coated Aerosol Particles", Towards a Molecular Understanding of Atmospheric Aerosol, Bonn, Germany, August 2018.
3. **B. R. Bzdek**, H. C. Boyer, C. S. Dutcher, and J. P. Reid, "Surface Properties of Organic-Inorganic and Organic-Inorganic-Surfactant Aerosol Droplets using Holographic Optical Tweezers," AAAR 35th Annual Conference, Portland, OR, October 2016.

4. **B. R. Bzdek**, A. E. Haddrell, Y. C. Song, D. O. Topping, and J. P. Reid, "Direct Measurements to Compare the Surface and Bulk Properties of Mixed Component Aerosol Droplets: Simultaneous Surface Tension and Viscosity Measurements," AAAR 35th Annual Conference, Portland, OR, October 2016.
5. **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," Towards a Molecular Understanding of Atmospheric Aerosol, Chaminade, CA, August 2016.
6. **B. R. Bzdek**, R. M. Power, and J. P. Reid, "Quantitative and Simultaneous Determination of the Surface Tension and Viscosity of Airborne Microdroplets," European Aerosol Conference, Milan, Italy, September 2015. (**Best Poster Award**)
7. **B. R. Bzdek**, J. W. DePalma, D. P. Ridge, J. Laskin, and M. V. Johnston, "Fragmentation and Growth Energetics of Ammonium Bisulfate Clusters Relevant to Atmospheric New Particle Formation," AGU Fall Meeting, San Francisco, CA, December 2012.
8. M. V. Johnston, M. R. Pennington, **B. R. Bzdek**, and J. W. DePalma, "Nanoparticle Growth Mechanisms during New Particle Formation," AGU Fall Meeting, San Francisco, CA, December 2012.
9. **B. R. Bzdek**, C. A. Zordan, G. W. Luther III, and M. V. Johnston, "Nanoparticle Chemical Composition during New Particle Formation by the Nano Aerosol Mass Spectrometer," AAAR 30th Annual Conference, Orlando, FL, October 2011.
10. **B. R. Bzdek**, D. P. Ridge, and M. V. Johnston, "Substitution Kinetics and Energetics of Aliphatic Amines for Ammonia in Aerosols," 2009 AGU Fall Meeting, San Francisco, CA, December 2009.
11. **B. R. Bzdek** and M. V. Johnston, "Reactions of Aliphatic Amines with Ammonium Sulfate Clusters," 57th ASMS Conference on Mass Spectrometry, Philadelphia, PA, June 2009.
12. **B. R. Bzdek** and M. M. McGuire, "Structural Comparison of Two Nontronite Clays using Polarized ATR-FTIR," 235th ACS National Meeting, New Orleans, LA, April 2008. (**Best Poster Award**)

Funding Acquired – Internal:

Title: Development of Predictive Frameworks for Indoor Air Quality

Lead Applicant: **Bryan Bzdek**; Other Applicants: Daniel Shien, Manuel Herrera, Martin Weinel, Yi Jin, Jonathan Norman, Kelly Thornber

Period: 09/2018-03/2019

Amount: £3,350

Sponsor: GW4

Funding Acquired – External:

Title: Supporting Early Career Researchers at the University of Bristol (Capital Award)

PI: Nishan Canagarajah; CoI's: Craig Butts, **Bryan Bzdek**, Daniele Fiscaletti, Tom Oliver, John Russo, Raf Theunissen, Alastair Lennox, Krishna Coimbatore Balram, Christy Gamlath

Period: 10/2018 – 04/2020

Amount: £425,000 (£76,242 to Bzdek to support purchase of a Scanning Mobility Particle Sizer)

Sponsor: EPSRC (EP/S018050/1)

Title: Impacts of Photoinitiated Chemical Processing on Climate Relevant Aerosol Processes

PI: **Bryan Bzdek**

Period: 09/2017 – 08/2022

Amount: £577,819

Sponsor: NERC (NE/P018459/1)

Mentoring Experience:

- PhD students: 1 started in 2018 (photochemistry in aerosols; through NERC GW4+ Doctoral Training Partnership); 1 starting in 2019 (surface properties of droplets; through EPSRC Centre for Doctoral Training in Aerosol Science); second assessor for 1 student (started in 2017)
- Master's students: 1 primary supervisor and 1 co-supervisor (in Computer Science) in 2018-2019, 1 in 2017-2018
- Bachelor's students: 1 in 2018-2019, assessor for additional 3 students in 2018-2019

Teaching Experience:

- University of Bristol: CHEMM0004: Aerosols (spring 2019), graduate/upper level undergraduate; Introductory Chemistry Workshops (spring 2019), first year undergraduates
- University of Delaware: CHEM 631: Environmental Chemistry (spring 2011; atmospheric chemistry portion), graduate/upper level undergraduate

Industry Experience: Internships at Sanofi-Aventis (Summer 2006, 2007) involving synthesis of novel compounds in the central nervous and medicinal chemistry groups.

Outreach:

- Presented an invited seminar on careers in science to high school students (April 2019).
- Participated in the Royal Society Pairing Scheme one-day workshop at the Houses of Parliament and the Royal Society, which included workshops on how science has impacted policy and a reception with Ministers, MPs, Peers, and Civil Servants at the Houses of Parliament (2018).
- Participated in the 2018 GW4 Crucible (theme: Resilience, Environment, and Sustainability), a series of workshops designed for young faculty to foster interdisciplinary and inter-institutional collaborations as well as engage with government, media, and the public (2018).
- Engaged with UK policy makers at the Houses of Parliament through the STEM for Britain program, a highly competitive poster competition (March 2017).
- Presented colloquia at the College of St. Rose (2012, directed to a broad audience of undergraduate students in all science majors) and Bucknell University (2012, directed to undergraduate chemistry majors who had some coursework in analytical and physical chemistry).
- Facilitated interactive learning activities for school-age children at Coast Day (Delaware), an annual environmental education outreach event that typically draws nearly 10,000 participants.
- Participated in the NSF Workshop “Science: Becoming the Messenger” (July 2011), which developed skills to communicate research to the news media and general public.

Service – External:

- Organized a GW4-sponsored workshop on Indoor Air Quality (January 2019) that included researchers across multiple disciplines from Bath, Bristol, Cardiff, and Exeter universities as well as representatives from industry and government agencies.
- Peer reviewer: *Nature Communications*, *Journal of Physical Chemistry Letters*, *ACS Central Science*, *Communications Chemistry*, *Environmental Science and Technology*, *Analytical Chemistry*, *Atmospheric Chemistry and Physics*, *Atmospheric Measurement Techniques*, *ACS Earth and Space Chemistry*, *Geophysical Research Letters*, *Journal of Geophysical Research – Atmospheres*, *Atmospheric Environment*, *Journal of Chemical Physics*, *Aerosol Science & Technology*, *Atmosphere*, *Tunnelling and Underground Space Technology*
- Session chair: American Association for Aerosol Research, 2017, 2018 (Aerosol Chemistry), 2013 (Remote and Regional Atmospheric Aerosols)
- Student poster competition judge: American Association for Aerosol Research, 2018

Service – Internal:

- Mock interview panel member for fellowship candidates, organized by Bristol’s Research Enterprise Development team
- Lecturer at Colloid Spring School, an annual three-day course bringing together employees from several different companies to learn about colloid and aerosol science (May 2017).

Languages: English (native), French (DELF B2 diploma)