Publications

Notable Journal Impact Factors (2018):

- ACS Nano 13.903
- ACS Materials and Interfaces 8.456
- Journal of Physical Chemistry Letters 7.329
- Nature Communications 11.880
- Nature 43.070
- Science 41.04
- PNAS 9.412

Author order: Unless otherwise noted, Jason R. Dwyer as first or last author for work post-2009 denotes conception, development, and analysis of the reported research, and writing of at least the final version of the manuscript. My name is first for my papers published at URI when I performed a significant portion of the work independently of my collaborators.

Google Scholar: https://scholar.google.com/citations?user=cFK7JhMAAAAJ
3265 citations; h-index 19; i10-index 28.

[UG]Denotes undergraduate author

1. **PNAS (2021) 118, e2022806118**. *Synthetic heparan sulfate standards and machine learning facilitate the development of solid-state nanopore analysis*. Ke Xia, James T Hagan, Li Fu, Brian S Sheetz, Somdatta Bhattacharya, Fuming Zhang, Jason R Dwyer, and Robert J. Linhardt. https://doi.org/10.1073/pnas.2022806118
2. **Review of Scientific Instruments (2021, accepted)**. *Targeting Improved Reproducibility in Surface-Enhanced Raman Spectroscopy with Planar Substrates Using 3D Printed Alignment Holders*. Buddini Iroshika Karawdeniya, Robert B. Chevalier, Y.M. Nuwan D.Y. Bandara, and Jason R. Dwyer.
3. **Journal of Raman Spectroscopy (2021) 52, 608-615**. *Optimizing non-contact oxygen-plasma treatment to improve the performance of a top-down nanofabricated SERS substrate with structurally responsive, high-aspect-ratio nanopillar array*. Robert B. Chevalier and Jason R. Dwyer. http://dx.doi.org/10.1002/jrs.6050
4. **Analytical and Bioanalytical Chemistry (2020) 412, 6639–6654**. *Chemically Tailoring Nanopores for Single-Molecule Sensing and Glycomics*. James T. Hagan, Brian S. Sheetz, Y.M. Nuwan D.Y. Bandara, Buddini I. Karawdeniya, Melissa A. Morris,[UG] Robert B. Chevalier, and Jason R. Dwyer. https://doi.org/10.1007/s00216-020-02717-2
5. **Nanotechnology (2020) 31 335707**. *Beyond Nanopore Sizing: Improving Solid-State Single-Molecule Sensing Performance, Lifetime, and Analyte Scope for Omics by Targeting Surface Chemistry During Fabrication*. Y. M. Nuwan D. Y. Bandara, Jugal Saharia, Buddini I. Karawdeniya, James T Hagan, Jason R. Dwyer, and Min Jun Kim. https://doi.org/10.1088/1361-6528/ab8f4d
6. **ACS Applied Nano Mater. (2020) 3, 2969-2977.** *Rapid, General-Purpose Patterning of Silicon Nitride Thin Films Under Ambient Conditions for Applications Including Fluid Channel and SERS Substrate Formation*. Brian Sperry Sheetz, Y.M. Nuwan D.Y. Bandara, Benjamin Rickson,[UG] Michael Auten,[UG] and Jason R. Dwyer. https://doi.org/10.1021/acsanm.0c00248
7. **ACS Nano (2019) 13, 8155-8168.** *Geometry-Based Self-Assembly of Histone-DNA Nanostructures at Single-Nucleotide Resolution*. Maged F. Serag, Aimaiti Aikeremu, Ryoko Tsukamoto, Hubert Piwonski, Maram Abadi, Noritada Kaji, Jason R Dwyer, Yoshinobu Baba, and Satoshi Habuchi. https://doi.org/10.1021/acsnano.9b03259
8. **Applied Spectroscopy (2019) 73, 1370-1379**. *An Open-Source, Iterative Dual-Tree Wavelet Background Subtraction Method Extended from Automated Diffraction Pattern Analysis to Optical Spectroscopy*. Robert B. Chevalier and Jason R. Dwyer. https://doi.org/10.1177/0003702819871330
9. **ACS Materials and Interfaces (2019) 11, 30411-30420.** Y. M. Nuwan D. Y. Bandara, Buddini I. Karawdeniya, James T. Hagan, Robert B. Chevalier, and Jason R. Dwyer. *Chemically Functionalizing Controlled Dielectric Breakdown Silicon Nitride Nanopores by Direct Photohydrosilylation*. https://pubs.acs.org/doi/10.1021/acsami.9b08004
10. **(INVITED) Journal of Analysis and Testing (2019) 3, 61-79.** *Challenging Nanopores with Analyte Scope and Environment*. Buddini I. Karawdeniya, Y.M. Nuwan D.Y. Bandara, Jonathan W. Nichols, Robert B. Chevalier, James T. Hagan, and Jason R. Dwyer. https://doi.org/10.1007/s41664-019-00092-1
11. **ACS Omega (2019) 4, 226-230**. *A Push-Button Method to Create Nanopores Using a Tesla Coil Lighter*. Y. M. Nuwan D. Y. Bandara ,1,† Buddini I. Karawdeniya,1,† and Jason R. Dwyer. https://pubs.acs.org/doi/10.1021/acsomega.8b02660

12. (preprint) **ChemRxiv (2018)**. *"Lights, Camera, Questions and Answers!": Talking About Science on Camera*. Buddini Karawdeniya Y.M. Nuwan D.Y. Bandara, Julie Whelan, John Yacano,[UG] Marissa DeOliveira,[UG] Dana Neugent, Regina Bell, Jason R. Dwyer. https://doi.org/10.26434/chemrxiv.7496294.v1
13. **Nature Communications (2018) 9, 3278**. *Surveying silicon nitride nanopores for glycomics and heparin quality assurance*. Buddini Iroshika Karawdeniya, Y.M. Nuwan D.Y. Bandara, Jonathan W. Nichols, Robert B. Chevalier, and Jason R. Dwyer. https://doi.org/10.1038/s41467-018-05751-y6 [9/27/19: 6 citations independent of Dwyer group]
14. **ACS Appl. Nano. Mater. (2018) 1, 960-968**. A General Strategy to Make an On-Demand Library of Structurally and Functionally Diverse SERS Substrates. Buddini Iroshika Karawdeniya, Y.M. Nuwan D.Y. Bandara, Julie C. Whelan, and Jason R. Dwyer. https://pubs.acs.org/doi/10.1021/acsanm.7b00385
15. **(INVITED) ELECTROPHORESIS (2018) 39, 626-634**. *Conductance-Based Profiling of Nanopores: Accommodating Fabrication Irregularities*. Y.M. Nuwan D.Y. Bandara, Jonathan W. Nichols, Buddini Iroshika Karawdeniya, and Jason R. Dwyer. https://onlinelibrary.wiley.com/doi/full/10.1002/elps.201700299.
16. **Physical Chemistry Chemical Physics (2017) *19, 27074-27080***. *A Comparison of SERS and MEF of Rhodamine 6G on A Gold Substrate*. Elizabeth Kohr, Buddini I. Karawdeniya, Jason R. Dwyer, Anju Gupta, and William B Euler. https://pubs.rsc.org/en/content/articlehtml/2017/CP/C7CP05569B . [My group provided the means to prepare the part of the experiment responsible for optical enhancement, and we contributed to the writing of the paper.]
17. **(INVITED, Focal Point Review) Applied Spectroscopy (2017) 71, 2051-2075**. Jason R. Dwyer and Maher Harb. *Through a window, brightly: A review of selected nanofabricated thin film platforms for spectroscopy, imaging, and detection.* DOI: https://doi.org/10.1177/0003702817715496
18. **ACS Applied Materials & Interfaces (2016) 8, 34964-34969**. Y.M. Nuwan D.Y. Bandara, Buddini Iroshika Karawdeniya, Julie C. Whelan, Lucas D.S. Ginsberg,[UG] and Jason R. Dwyer. *Solution-Based Photo-Patterned Gold Film Formation on Silicon Nitride*. https://pubs.acs.org/doi/10.1021/acsami.6b12720
19. **(INVITED) Nanofluidics 2nd edition: Nanoscience and Nanotechnology Series (2016) 196-236**. Jason R. Dwyer*, Y.M. Nuwan D.Y. Bandara, Julie C. Whelan, Buddini Iroshika Karawdeniya, and Jonathon W. Nichols. *Silicon nitride membranes for nanofluidic device fabrication*. (Eds. Joshua Edel & Min Jun Kim, Royal Society for Chemistry). http://dx.doi.org/10.1039/9781849735230 .
20. **ACS Applied Materials & Interfaces (2016), 8, 30583–30589**. *Real-time Profiling of Solid-State Nanopores During Solution-Phase Nanofabrication*, Y.M. Nuwan D.Y. Bandara, Buddini Iroshika Karawdeniya, and Jason R. Dwyer. https://pubs.acs.org/doi/10.1021/acsami.6b10045
21. **ACS Applied Materials & Interfaces (2014) 6, 10952-10957**. Julie C. Whelan, Buddini Iroshika Karawdeniya‡, Y.M. Nuwan D.Y. Bandara‡, Brian D. Velleco, Caitlin M. Masterson[UG] and Jason R. Dwyer. *Electroless Plating of Thin Gold Films Directly onto Silicon Nitride Thin Films and into Micropores*. ‡equal contributions. https://pubs.acs.org/doi/10.1021/am501971n.
22. **(INVITED, cover) ACS Applied Materials & Interfaces Forum: New Frontiers and Challenges in Biomaterials (2013) 5, 9330-9337.** C.M. Frament,[UG] N. Bandara and J.R. Dwyer, *Nanopore surface coating delivers nanopore size and shape through conductance-based sizing.* https://pubs.acs.org/doi/10.1021/am4026455.
23. **(INVITED FOR ACS LIVESLIDES) J. Phys. Chem. Lett. (2013) 4, 2339**. C. Mueller, M. Harb, J.R. Dwyer and R.J.D. Miller. *Nanofluidic cells with controlled path length and liquid flow for rapid, high-resolution in situ Imaging with Electrons*. https://pubs.acs.org/doi/10.1021/jz401067k.
24. **Review of Scientific Instruments (2013) 84, 036101-036101-2**. Jason R. Dwyer*, Łukasz Szyc, Erik T.J. Nibbering and Thomas Elsaesser. *Note: An environmental cell for transient spectroscopy on solid samples in controlled atmospheres*. *Corresponding author. https://aip.scitation.org/doi/10.1063/1.4794092
25. **MRS Online Proceedings Library (2013) 1544.** C. Mueller, M. Harb, J.R. Dwyer and R.J.D. Miller. *Nanofluidic Cells with Controlled Path Length and Liquid Flow For Rapid, High-Resolution In Situ Electron Microscopy*. http://dx.doi.org/10.1557/opl.2013.780
26. **Journal of Physical Chemistry C (2012) *116, 23315-23321*.** C.M. Frament[UG] and J.R. Dwyer. *Conductance-Based Determination of Solid-State Nanopore Size and Shape: An Exploration of Performance Limits*. https://pubs.acs.org/doi/10.1021/jp305381j.
27. **Journal of Physical Chemistry A (2011) 115, 13149-13157.** R. Dawes*, J.R. Dwyer*, W. Qu and K.M. Gough (*equal contributions). *QTAIM Investigation of the Electronic Structure and Large Raman Scattering Intensity of Bicyclo-[1.1.1]-pentane*. https://pubs.acs.org/doi/10.1021/jp205658z

28. **ACS Nano (2009) 3, 3009-3014.** V. Tabard-Cossa, M. Wiggin, D. Trivedi, N.N. Jetha, J.R. Dwyer and A. Marziali. *Single-Molecule Bonds Characterized by Solid-State Nanopore Force Spectroscopy*. https://pubs.acs.org/doi/abs/10.1021/nn900713a
29. (**SPECIAL ISSUE**) **Chemical Physics (2009) 357, 36-44.** Ł. Szyc, J.R. Dwyer, E.T.J. Nibbering and T. Elsaesser. *Ultrafast dynamics of N-H and O-H stretching excitations in hydrated DNA oligomers*. https://doi.org/10.1016/j.chemphys.2008.08.013
30. **Journal of Physical Chemistry B**, ***(2008) 112, 11194-11197.*** J.R. Dwyer, Ł. Szyc, E.T.J. Nibbering and T. Elsaesser. *Ultrafast vibrational dynamics of adenine-thymine base pairs in DNA oligomers*. https://pubs.acs.org/doi/10.1021/jp8054119
31. **Springer Series in Chemical Physics, Ultrafast Phenomena XVI (2008) 92, 535-537.** J.R. Dwyer, Ł. Szyc, E.T.J. Nibbering and T. Elsaesser. *Ultrafast vibrational dynamics of adenine-thymine base pairs in hydrated DNA.*
32. **(INVITED)** K.M. Gough, R. Dawes, J.R. Dwyer and T.R. Welshman, *QTAIM analysis of Raman scattering intensities: Insights into the relationship between molecular structure and electronic charge flow.* In *Recent Advances in the Quantum Theory of Atoms in Molecules* (Eds. R.J. Boyd and C. Matta., Wiley-VCH). March 2007, ISBN 978-3-527-30748-7. [Refereed book chapter]
33. (**INVITED**) **Chemical Physics (2007) 341, 175-188.** T. Elsaesser, N. Huse, J. Dreyer, J.R. Dwyer, K. Heyne and E.T.J. Nibbering. *Ultrafast vibrational dynamics and anharmonic couplings of hydrogen-bonded dimers in solution.* https://doi.org/10.1016/j.chemphys.2007.06.036
34. (**INVITED**) **Journal of Modern Optics (2007) 54, 923-952.** J.R. Dwyer, R.E. Jordan, C.T. Hebeisen, M. Harb, R. Ernstorfer, T. Dartigalongue and R.J.D. Miller. *Experimental basics for femtosecond electron diffraction studies.* (DOI: 10.1080/09500340601125020)
35. **Journal of Modern Optics (2007) 54, 905-922.** J.R. Dwyer, R.E. Jordan, C.T. Hebeisen, M. Harb, R. Ernstorfer, T. Dartigalongue and R.J.D. Miller. *Femtosecond electron diffraction: An atomic perspective of condensed phase dynamics.* (DOI: 10.1080/09500340601095348)
36. **Springer Series in Chemical Physics, Ultrafast Phenomena XV (2007) 88, *335-337*.** A. Paarmann, D. Kraemer, M.L. Cowan, N. Huse, M. Harb, B.D. Bruner, J.R. Dwyer, E.T.J. Nibbering, T. Elsaesser and R.J.D. Miller. *2D-IR photon echo spectroscopy of liquid H_2O—Combination of novel nanofluidics and diffractive optics deciphers ultrafast structural dynamics*.
37. **Chemical Physics Letters (2006) 432, 146-151.** J.R. Dwyer, J. Dreyer, E.T.J. Nibbering and T. Elsaesser. *Ultrafast dynamics of vibrational N-H stretching excitations in the 7-azaindole dimer.*
38. **Philosophical Transactions of the Royal Society A (2006) 364, 741-778.** J.R. Dwyer, C.T. Hebeisen, R. Ernstorfer, M. Harb, V.B. Deyirmenjian, R.E. Jordan and R.J.D. Miller. *Femtosecond electron diffraction: "Making the molecular movie"*. (DOI: 10.1098/rsta.2005.1735)
39. **Nature (2005) 434, 199-202.** M.L. Cowan, B.D. Bruner, N. Huse, J.R. Dwyer, B. Chugh, E.T.J. Nibbering, T. Elsaesser and R.J.D. Miller. *Ultrafast memory loss and energy redistribution in the hydrogen bond network of liquid H_2O*. https://www.nature.com/articles/nature03383 [9/27/2019: 561 citations]
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41. **Chemical Physics (2004) 299, 285-305.** B.J. Siwick, J.R. Dwyer, R.E. Jordan and R.J.D. Miller. *Femtosecond electron diffraction studies of strongly driven structural phase transitions*.
42. (**JOURNAL COVER**) **Science (2003) 302, 1382-1385.** B.J. Siwick, J.R. Dwyer, R.E. Jordan and R.J.D. Miller. *An atomic level view of melting using femtosecond electron diffraction*. https://science.sciencemag.org/content/302/5649/1382 [9/27/2019 630 citations]
43. **Springer Series in Chemical Physics, Ultrafast Phenomena XIII (2003), 71, 322-324.** B.J. Siwick, J.R. Dwyer, R.E. Jordan and R.J.D. Miller. *Ultrafast electron optics: Propagation dynamics and measurement of femtosecond electron packets*.
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49. **Canadian Journal of Chemistry (1996) 74, 1139-1144.** K.M. Gough, M. Yacowar, R.H. Cleve and J.R. Dwyer. *Analysis of polarizability derivatives in H_2, HF, F_2, N_2 and CO with the theory of atoms in molecules.*