Brian J. Drouin

Senior Research Scientist – Jet Propulsion Laboratory

Professional Experience

Jet Propulsion Laboratory	(1999–present)
Senior Research Scientist	(2023-present)
Acting Manager, Earth Science Section	(2023-2023)
Deputy Manager, Earth Science Section	(2021-present)
Principal Scientist, Laboratory Spectroscopy and Instrument Development	(2018–present)
Group Supervisor, Laboratory Studies and Atmospheric Observations	(2015–2021)
Scientist, Earth and Space Sciences Division	(2001–2018)
Editor: J. Quant. Spectrosc. Radiat. Trans.	(2019–2024)
J. Molec. Spectrosc.	(2010–2014)
Member: HITRAN steering committee (2010-present) HITRAN committee	(2010–present)
Virtual Atomic and Molecular Data Centre (VAMDC)	(2010–present)
IEEE, AGU member	(2017–present)
California Institute of Technology Postdoctoral Scholar at JPL	(1999–2001)
University of Arizona, Department of Chemistry,	(1995–1999)

Education: Ph.D., Chemistry, University of Arizona (1999); B.S., Chemistry, University of Wisconsin (1995); B.S., Mathematics, University of Wisconsin (1995)

Beginning with highly precise microwave spectroscopic measurements of organometallic compounds in cold molecular beams, Brian's Ph. D. work required mastery of quantum mechanics and structural analyses. At JPL he has recorded and analyzed microwave, millimeter, submillimeter, far-infrared, mid-infrared, near-infrared, visible and ultraviolet spectra of interest to remote sensing while developing hardware and software for state-of-the-art spectrometers. He has participated in eight field campaigns for deployment of JPL instruments onboard stratospheric balloons and NASA aircraft. He is responsible for measurements of molecular line-shape parameters for earth science sensing and astro-chemicals. He has built a field ready THz spectrometer for in-situ gas sensing and developed technologies and methods to enable compact low-mass, low power versions with similar capabilities. As project scientist for PREFIRE he worked extensively with technical staff to develop the instrument models; and to plan and execute the calibration efforts; and produced the calibrated radiance algorithm for flight. He administrates and is the primary contributor to the JPL spectral line catalog used throughout the spectroscopy and remote sensing communities.

Brian's mentoring, technical and management skills have been honed through interaction with senior research scientists, research scientists, scientists, postdoctoral fellows, graduate students and undergraduates. At JPL he has served as deputy and acting section manager and group supervisor to scientists and technologists and served as mentor to five postdoctoral fellows and advised four others who worked heavily in his laboratory. He has also hosted a half dozen graduate students whose research partially overlapped with the JPL spectroscopy laboratory and directly mentored seven undergraduate researchers. He has served on internal committees for technology advisement, principal selection, awards, and strategic planning.

Brian serves on both the MLS and OCO-2 science teams and leads the PREFIRE science team. He has participated in mission proposals as PI, DPI, instrument scientist and Co-I. He participates in NASA, R&TD and SBIR review panels and regularly reviews scientific manuscripts for both spectroscopy and instrumentation.

ROSES Principal Investigator Experience

ACT – Compact UV Spectropolarimetry enabled by meta-grating technologies	(2023 – present)
STOCOM – Oxygen A-band Spectroscopy	(2015 – present)
UARP/ACLAB – Spectroscopy for Atmospheric Research	(2005 – present)
PICASSO – Spectrometer-on-a-Chip	(2014 – 2022)
APRA – Measurements of State-to-State Collision Rates for Water	(2006 – 2013)
ASTID – Submillimeter Spectroscopic Gas Analysis for Life Detection	(2008 – 2012)
ADAP/Herschel – Laboratory Spectroscopy and Spectral Line Catalog	(2008 – 2011)

Brian Drouin – mentoring history

Postdoctoral Fellows: Lavanya Periasamy, Deacon Nemchick, Matthew Cich, Emily Brageot, Adam Daly, Shanshan Yu, Michael Dick, [informally Wen Chao, Harshal Gupta, Carolyn Brauer, Ben Elliot]

Graduate Students: @Caltech; Leah Stevenson, Elizabeth Lunny, Julie Fry, Susanna Widicus-Weaver @Harvard; Alexander Raymond, @CU; Scott Egbert, David Yun, Nathan Malarich, Paul Schroeder, @JPL; Mazdak Kebria @CESR; Valerio Lattanzi @Arizona; Tyler Herman, Ambesh Singh;

Undergraduate Students: @JPL; Ananda Nole, William Waliser, Haley Lam, Hayk Haykopian, Alexander Raymond, Michael Rose, Lori Cheng, Wei Lin, Octav Duclos, Brendan Coffey, Marlon Ramos, Gregory Simonian @Arizona; Jennifer Dannemiller, Paul Cassak

Brian Drouin – Training transcript excerpts (excludes safety and mandatory trainings)

Extraordinary Leader	11/23, 6/15
Media Essentials	8/23, 9/23
Preventing Harassment and Discrimination – For Supervisors	12/15, 4/17, 4/19, 5/21, 3/23, 3/25
Managing Resources – Foundry Proposal Office	12/22
Capture Lead Workshop	10/22
Annual Salary Review Process for Managers	10/22
Continuous Coaching	5/22
Inclusive Leadership	10/21
TRL Best Practices for Evaluating the Readiness of Technology	5/21
Mid-Level Leaders	7/21, 9/21
Bystander intervention Training for Managers	7/20
Managing Virtual Teams	5/20
EKS: Working in the JPL Environment	2/20
EKS: Employee Relations and Legal Aspects of Supervision	9/19
EKS: Compensation	7/19
Leading & Modeling Gender Intelligence	9/18
Inspiring Leader	4/18
Intellectual Property and Technology Transfer for Supervisors and Managers	9/17
Scientist/Mission Interface Workshop	9/17
Systems Engineering Workshop	11/16
Career Conversations for Mastering Dialogue	9/16
Bias in Decision Making	9/16
University Subcontract Workshop	6/16
Launchpad Program	6/16
Situational Leadership	4/16
Helping Others Succeed	3/16
The Stay Interview (For People Managers)	3/16
Title IX Training for Supervisors/Mentors/Leads	10/15

Brian Drouin – Publications: 42 first author, 194 journal articles, 19 conference papers, 3 decadal survey white papers, H# = 41, Max cite = 2640, Max cite (first author) = 125

1. Drouin, B.J., Nemchick, D.J., Maestrini, A., "High Precision Measurement of the $^3P_0$ - $^3P_1$ Atomic Oxygen Fine Structure Splitting at 2.06 THz", submitted to *J. Quant. Spectrosc. Radiat. Trans.*, 2025
2. Drouin, B.J., L'Ecuyer, T.S., Padmanabhan, S., *et al.* "Thermal Infrared Spectrometers for the Polar Radiant Energy in the Far-Infrared Experiment (PREFIRE)", in review at *Earth and Space Sciences*, 2025.
3. Drouin, B.J., Nemchick, D.J., Nole, A., Tang, A., Wu, C-T.M., Khiabani, N., Alonso, M., Chang, M-C.F., "Dual-band Fourier-transform millimeter wave spectrometry for *in-situ* gas sensing" *Planetary Science Journal*, 4(6) 2023.
4. Drouin, B.J., Kahn, B.H., Lim, B., Merrelli, A., Nelson, E., Quinn, G., Nagle, F., L'Ecuyer, T., "Orbital Trade Study for the PREFIRE Mission", *Aerospace Conference*, 2022 IEEE, 2.0108_2312
5. Drouin, B.J., "Practical uses of SPFIT", *J. Molec. Spectrosc.* 340, 1-15, 2017.
6. Drouin, B.J., Crawford, T.J., Yu, S., "Validation of ozone intensities at 10 μm with THz spectrometry", *J. Quant. Spectrosc. Radiat. Trans.* 203 282-292, 2017.
7. Drouin, B.J., A. Tang, E. Schlecht, E, Brageot, Q.J. Gu, Y. Ye, R. Shu, M.C.F Change and Y. Kim, "A CMOS millimeter-wave transceiver embedded in a semi-confocal Fabry-Perot cavity for molecular spectroscopy", *J. Chem. Phys.* 145(7) 074201, 2016.
8. Drouin, B.J., D.C. Benner, L.R. Brown, M.J. Cich, T.J. Crawford, V.M. Devi, A. Guillaume, J.T. Hodges, E.J. Mlawer, D.J. Robichaud, F. Oyafuso, V. J. Payne, K. Sung, E.H. Wishnow, S. Yu, "Multispectrum analysis of the Oxygen A-band." *J. Quant. Spectrosc. & Radiat. Trans.* 186, 118-138, 2017.
9. Drouin, B.J., V. Payne, F. Oyafuso, K. Sung, E. Mlawer, "Pressure broadening of oxygen by water", *J. Quant. Spectrosc. & Radiat. Trans.*, 133 190-198 2014.
10. Drouin, B.J., S. Yu, B. M. Elliott, T. J. Crawford, C. E. Miller, "High resolution spectral analysis of oxygen. III. Laboratory investigation of the airglow bands", *J. Chem. Phys.* 139, 144301, 2013.
11. Drouin B.J., J.C. Pearson, S. Yu, H. Gupta "Characterization and use of a 1.3-1.5 THz multiplier chain for molecular spectroscopy." (invited paper) *IEEE-TST* 3(3) 314-321, 2013.
12. Drouin B.J. "Isotopic Spectra of the Hydroxyl Radical" J. Phys. Chem. A 117(39) 10076-10091, 2013.
13. Drouin, B.J., L. Wiesenfeld, "Low-Temperature water-hydrogen-molecule collisions probed by pressure broadening and line shift", *Phys. Rev. A* 86, 022705, 2012.
14. Drouin, B.J., H. Gupta, S. Yu, C.E. Miller, H.S.P. Mueller, "High resolution spectral analysis of oxygen. II. Rotation al spectra of $^1\Delta_g$ O_2 isotopologues", *J. Chem. Phys.* 136, 024305, 2012.
15. Drouin, B.J., K. Cooper, R. Dengler, M. Chavez, W. Chun, T. Crawford. "Submillimeter wave spectrometry for in-situ planetary science" *Aerospace Conference*, 2012 IEEE, 1-4, 2012
16. Drouin B.J., S. Yu, J. C. Pearson, H. Gupta, "Terahertz Spectroscopy for Space Applications, 2.5-2.7: THz Spectra of HD, H_2O and NH_3" *Journal of Molecular Structure* Special Issue on THz Spectroscopy, 1006, 2-12, 2011.
17. Drouin B.J., S. Yu, "Acetylene Spectra near 2.6 THz" *J. Molec. Spectrosc.* 269(2), 254-256, 2011.
18. Drouin B.J., J.C. Pearson, M.J. Dick, Reply to "Comment on 'Collisional cooling investigation of THz rotational transitions of water'" *Physical Review* A, 82(3) 036704, 2010.
19. Drouin B.J., S. Yu, C.E. Miller, H.S.P. Mueller, F. Lewen, S.Bruenken, H. Habara, "Terahertz spectroscopy of oxygen,O_2, $^3\Sigma_g$ and $^1\Delta$ electronic states", *J. Quant. Spectrosc. Radiat. Trans.*, 111, 1167–1173, 2010.
20. Drouin B.J., S. Yu, J.C. Pearson, H.S.P. Mueller, "High resolution spectroscopy of CH_3D and $^{13}CH_3D$", *J. Quant. Spectrosc. Radiat. Trans.* 110(18) 2077-2081, 2009.
21. Drouin, B.J., R. R. Gamache, "Temperature Dependent Air Broadened Linewidths of Ozone Rotational Transitions" *J. Molec. Spectrosc.*, 251(1-2), 1-3, 2008.

22. Drouin B.J., K. Cooper, R.A. Stachnik, J.C. Pearson. “Submillimeter wave spectroscopy and the search for life on planets.” Infrared, Millimeter and Terahertz Waves, 2008. IRMMW-THz 2008. 33rd International Conference on, 1-3, 2008.
23. Drouin, B.J., "Temperature dependent pressure induced linewidths of O_2 and $^{18}O^{16}O$ transitions in nitrogen, oxygen and air", *J. Quant. Spectrosc. Radiat. Trans.*, 105 (3): 450-458, 2007.
24. Drouin, B.J., "Submillimeter measurements of N_2 and air broadening of hypochlorous acid," *J. Quant. Spectrosc. Radiat. Trans.*, 103 (3): 558-564, 2007.
25. Drouin, B.J., J. C. Pearson, A. Walters, V. Lattanzi "THz Measurements of Propane" *J. Molec. Spectrosc.*, 240 (2): 227-237, 2006.
26. Drouin, B. J., F.W. Maiwald, "Extended THz measurements of nitrous oxide, N_2O," *J. Molec. Spectrosc.*, 236 (2): 260-262, 2006.
27. Drouin, B. J., C. E. Miller, J. L. Fry, D. T. Petkie, P. Helminger, I. Medvedev, "Submillimeter measurements of isotopes of nitric acid," *J. Molec. Spectrosc.*, 236 (1): 29-34, 2006.
28. Drouin B. J., F.W. Maiwald, J. C. Pearson, "Application of cascaded frequency multiplication to molecular spectroscopy," *Review of Scientific Instruments*, 76 (9): Art. No. 093113, 2005.
29. Drouin B.J., J. L. Fry, C. E. Miller, “Rotational spectrum of cis-cis HOONO”, *Journal of Chemical Physics*, 120 (12): 5505-5508, 2004.
30. Drouin B.J., “Temperature dependent pressure-induced lineshape of the HCl $J = 1 \leftarrow 0$ rotational transition in nitrogen and oxygen”, *J. Quant. Spectrosc. Radiat. Trans.*, 83 (3-4): 321-331, 2004.
31. Drouin B.J., J. Fischer, R. R. Gamache, “Temperature dependent pressure induced lineshape of O_3 rotational transitions in air”, *J. Quant. Spectrosc. Radiat. Trans.*, 83 (1): 63-81, 2004.
32. Drouin B.J., C. E. Miller and E. A. Cohen, “Further investigations of the submillimeter spectrum of ClO”, *J. Molec. Spectrosc.*, 207(1), 4-9, 2001.
33. Drouin B.J., C. E. Miller, H. S. P. Muller and E. A. Cohen, “The rotational spectra, isotopically independent parameters, and interatomic potentials for the $X_1\ ^2\Pi_{3/2}$ and $X_2\ ^2\Pi_{1/2}$ states of BrO”, *J. Molec. Spectrosc.*, 205(1), 128-138, 2001.
34. Drouin B.J., J. J. Dannemiller and S. G. Kukolich, “Structural characterization of 'syn' and 'anti' - allyltricarbonylbromide, analyses of rotational spectra, quadrupole coupling and density functional calculations”, *Inorganic Chemistry*, 39(4), 827-835, 2000.
35. Drouin B.J., J. J. Dannemiller and S. G. Kukolich, “The gas-phase structure of chloroferrocene from microwave spectra”, *Journal of Chemical Physics*, 112(2), 747-751, 2000.
36. Drouin B.J. and S. G. Kukolich, “Microwave spectra and the molecular structure of tetracarbonylethyleneiron”, *Journal of the American Chemical Society*, 121(16), 4023-4030, 1999.
37. Drouin B.J. P.A. Cassak and S. G. Kukolich, “Microwave measurements of rhenium quadrupole coupling in cyclopentadienyl rhenium tricarbonyl”, *Journal of Chemical Physics*, 108(21), 8878-8883, 1998.
38. Drouin B.J. S.G. Kukolich, “Molecular structure of tetracarbonyldihydroiron: Microwave measurements and density functional theory calculations”, *Journal of the American Chemical Society*, 120(27), 6774-6780, 1998.
39. Drouin B.J. N. E. Gruhn, J. F. Madden, S.G. Kukolich, M. Barfield, R.S. Glass, “Gas-phase conformational analysis of 1,4,7-trithiacyclononane”, *Journal of Physical Chemistry A*, 101(48), 9180-9184, 1997.
40. Drouin B.J. T. G. Lavaty, P. A. Cassak , S.G. Kukolich “Measurements of structural and quadrupole coupling parameters for bromoferrocene using microwave spectroscopy”, *Journal of Chemical Physics*, 107(17) 6541-6548, 1997.
41. Drouin B.J. P. A. Cassak, P. M. Briggs, S.G. Kukolich “Determination of structural parameters for the half-sandwich compounds cyclopentadienyl thallium and cyclopentadienyl indium and indium quadrupole coupling for cyclopentadienyl indium using microwave spectroscopy”, *Journal of Chemical Physics*, 107(10), 3766-3773, 1997.
42. Drouin B.J. P. A. Cassak, S. G. Kukolich, “Measurements of structural and quadrupolar coupling parameters for chloroferrocene using microwave spectroscopy”, *Inorganic Chemistry*, 36(13), 2868-2871, 1997.

Brian Drouin - Peer-reviewed Non-first Author Publications

43. Egbert, S.C., Sung, K., Coburn, S.C., Drouin, B.J., Rieker, G.B., "Water-Vapor Absorption Database using Dual Comb Spectroscopy from 300-1300 K Part II: Air-broadened H_2O, 6600 to 7650 cm^{-1}" *J. Quant. Spectrosc. Radiat. Trans.*, 318, 108940, 2024.
44. Egbert, S.C., Sung, K., Coburn, S.C., Drouin, B.J., Rieker, G.B., "Water-Vapor Absorption Database using Dual Comb Spectroscopy from 300-1300 K Part I: Pure H_2O, 6600 to 7650 cm^{-1}" *J. Quant. Spectrosc. Radiat. Trans.*, 318, 108940, 2024.
45. Kahn, B., Bertossa, C., Chen, X., Drouin, B., Hokanson, E., Huang, X., L'Ecuyer, T., Mattingly, K., Merrelli, A., Michaels, T., Miller, N., Donat, F., Maestri, T., Martinazzo, M., "The Polar Radiant Energy in the Far Infrared Experiment (PREFIRE) principal component-based cloud mask: A simulation experiment" submitted to *Atmos. Meas. Tech.* (AMT), October, 2023.
46. Taylor, T.E., O'Dell, C.W., Baker, D., Bruegge, C., Chang, A., Chapsky, L., Chatterjee, A., Cheng, C., Chevallier, F., Crisp, D., Dang, L., Drouin, B., Eldering, A., Feng, L., Fisher, B., Fu, D.J., Gunson, M., Haemmerle, V., Keller, G.R., Kiel, M., Kuai, L., Kurosu, T., Lambert, A., Laughner, J., Lee, R., Liu, J.J., Mandrake, L., Marchetti, Y., McGarragh, G., Merrelli, A., Nelson, R.R., Osterman, G., Oyafuso, F., Palmer, P.I., Payne, V.H., Rosenberg, R., Somkuti, P., Spiers, G., To, C., Weir, B., Wennberg, P.O.,Yu, S.S., Zong, J. "Evaluating the consistency between OCO-2 and OCO-3 XCO2 estimates derived from the NASA ACOS version 10 retrieval algorithm", *Atmos. Meas. Tech.* 16(12), 3172-3209, 2023
47. Miller, N.B., Merrelli, A., L'Ecuyer, T.S., Drouin, B.J., "Simulated Clear-Sky Water Vapor and Temperature Retrievals from PREFIRE Measurements", *J. Atmos. Ocean. Tech.* 40(6), 645-659, 2023.
48. Xie, Y., Huang. X., Chen, X., L'Ecuyer, T.S., Drouin, B.J., "Joint Use of Far-Infrared and Mid-Infrared Observation for Sounding Retrievals: Learning from the Past for Upcoming Far-Infrared Missions" *Earth and Space Science*, 10(3) 2023, 10.1029/2022EA002684
49. Sung, K.Y., Wishnow, E.H., Drouin, B.J., Manceron, L., Verseils, M., Benner, D.C., Nixon, C.A., "The rotational spectrum of HD broadened by H_2 at temperatures between 100-296 K" *J. Quant. Spectrosc. & Radiat. Trans.* 295, 108412, 2023. 10.1016.j.jqsrt.2022.108412
50. Xie, Y., Huang, X.L., Chen, X.H., L'Ecuyer T.S., Drouin, B.J., Wang, J., " Retrieval of Surface Spectral Emissivity in Polar Regions Based on the Optimal Estimation Method", *J. Geophys. Res. Atmos.* 127(5) e2021JD035677, 2022. DOI10.1029/2021JD035677
51. Nemchick, D.J., Hakopian, H., Drouin, B.J., Tang, A.J., Alonso-delPino, M., Chattopadhyay, G., Chang M-C. F., "180-GHz pulsed CMOS transmitter for molecular sensing", *IEEE Trans. THz Sci. & Tech.* 469-476, 11(5), 2021.
52. Gordon, I., Rothman L.R., *et al.* "The HITRAN2020 molecular spectroscopic database", *J. Quant. Spectrosc. & Radiat. Trans.* 277, 107949, 2021. 10.1016.j.jqsrt.2021.107949
53. Cole, R.K., Hoghooghi, N., Drouin, B.J., Rieker, G.B., "High-temperature absorption line shape parameters for CO_2 in the 6800-7000 cm^{-1} region from dual frequency comb measurements up to 1000 K", *J. Quant. Spectrosc. & Radiat. Trans.* 276, 107912, 2021. 10.1016/j.jqsrt.2021.107912
54. Reed, Z.D., Drouin, B.J., Hodges J.T., "Inclusion of the recoil shift in Doppler-broadened measurements of CO_2 transition frequencies," *J. Quant. Spectrosc. & Radiat. Trans.* 275, 107885, 2021.
55. Malarich, N.A., D. Yun, K. Sung, S. Egbert, S.C. Coburn, B.J. Drouin, G.B. Rieker, "Dual frequency comb absorption spectroscopy of CH_4 up to 1000 Kelvin from 6770-7570 cm^{-1}", *J. Quant. Spectrosc. & Radiat. Trans.* 272, 107812, 2021. 10.1016/j.jqsrt.2021.107812
56. Reed, Z., Drouin, B.J., Long, D.A., Hodges, J. T., "Molecular transition frequencies of CO_2 near 1.6 μm with kHz-level uncertainties," *J. Quant. Spectrosc. & Radiat. Trans.* 271, 107681, 2021.
57. L'Ecuyer, T.S., Drouin, B.J., Anheuser, J., Grames M., Henderson, D., Huang, X., Kahn, B.H., Kay, J.E., Lim, B.H., Mateling, M., Merrelli, A., Miller, N.B., Padmanabhan, S., Peterson, C., Schlegel, N.-J., White, M.L., Xie, Y., "The Polar Radiant Energy in the Far-InfraRed Experiment: A New Perspective on Polar longwave Energy Exchanges," *Bulletin of the American Meteorological Society (BAMS*), 102(7), E1431-E1449, 2021.
58. Mueller, H.S.P., Belloche, A., Lewen, F., Drouin, B.J., Sung, K., Garrod R.T., Menten K.M., "Toward a global model of the interactions in low-lying states of methyl cyanide: rotational and rovibrational

spectroscopy of the $\nu_4 = 1$ state and tentative detection of the $\nu_4 = \nu_8 = 1$ state in Sgr B2(N)," *J. Molec. Spectrosc.* 378, 111449, 2021.
59. Choi, M., Sander, S., Spurr, R.J.D., et al. "Aerosol profiling using radiometric and polarimetric spectral measurements in the O_2 near infrared bands: Estimation of information content and measurement uncertainties," *Remote Sensing of the Environment* 253(112179), 2021.
60. Pearson, J.C., Drouin, B.J., Yu. S., "Instrumentation for THz Spectroscopy in the Laboratory and in Space*", IEEE Journal of Microwaves*, Vol. 1, Iss. 1, 2021 (invited paper to inaugural journal issue)
61. Kahn, B. H.; Drouin, B. J.; L'Ecuyer, T. S. "Assessment of Sampling Sufficiency for Low-Cost Satellite Missions: Application to PREFIRE" *J. Atmos. Oc. Tech.* 37(12), 2283-2298, 2020, 10.1175/JTECH-D-20-0023.1
62. Albert, D., Antony B.K., et al., "A decade with VAMDC: results and ambitions," *Atoms*, 8(4) 76, 2020.
63. Hobbs, J.M., Drouin B.J., Oyafuso, F., Payne, V.H., Gunson, M.R., McDuffie J., Mlawer E.J., "Spectroscopic Uncertainty Impacts on OCO-2/3 retrievals of XCO_2," *J. Quant. Spectrosc. & Radiat. Trans.*, 257(107360), 2020.
64. Sung K., Devi, V.M., Benner, D.C., Drouin, B.J., Crawford, T.J., Mantz, A.W., Smith, M.A.H., "H_2-pressure broadening and frequency shifts of methane in the $\nu_2+\nu_3$ band measured in the temperature range between 80 and 370 K", *J. Quant. Spectrosc. & Radiat. Trans.*, 256(107264), 2020. 10.1016/j.jqsrt.2020.107264
65. Payne, V., Drouin, B.J., Oyafuso, F., Kuai, L., Fisher, B., Sung, K., Nemchick, D., Crawford, T., Smyth, M., Crisp,. D., Adkins, E., Hodges, J., Long, D., Mlawer, E., Merrelli, A., Lunny, E., O'Dell, C., "Absorption Coefficient (ABSCO) tables for the Orbiting Carbon Observatories: Version 5.1," *J. Quant. Spectrosc. & Radiat. Trans.*, 2020, 255, 107217, 2020. 10.1016/j/jqsrt.2020.107217
66. Furtenbacher, T., Coles, P.A., Tennyson, J., Yurchenki, S.N., Yu, SS., Drouin, B., Tobias, R., Csaszar, A.G., "Empirical rovibrational energy levels of ammonia up to 7500 cm^{-1}," *J. Quant. Spectrosc. & Radiat. Trans.*, 251, 107027, 2020, 10.1016/j/jqsrt.2020.107027.
67. Raymond, Alexander W., Lee, K.L.K, McCarthy, M.C., Drouin B.J., Mazur, E. "Detecting Laser-Volatilized Salts with a Miniature 100-GHz Spectrometer" *J. Phys. Chem. A*, 124(7) 1429-1436, 2020.
68. Wang X.X., Korth B.A., Weigel, P.O., Nemchick, D.J., Drouin, B.J., Becker, W., Zhao, Q.Y., Zhu, D., Colangelo, M., Dane, A.E., Berggren, K.K., Shaw, M.D., Mookherjea, S.,. "Oscilliscopic Capture of Greater-Than-100 GHz, Ultra-Low Power Optical Waveforms Enable by Integrated Electrooptic Devices.", *J. Lightwave Tech.*, 38(1) 166-173, 2020.
69. Bray, C., Cuisset, A., Hindle, F., Bocquet, R., Mouret, G., Drouin, B.J., "CH_3D photomixing spectroscopy up to 2.5 THz: new set of rotational and dipole parameters, first THz self-broadening measurements (vol 189, pg 198, 2017)", *J. Quant. Spectrosc. & Radiat. Trans.*, 241, Correction, 2020.
70. Sung, K., Wishnow, E.H., Crawford, T.J., Nemchick, D., Drouin, B.J., Toon, G.C., Yu, S., Payne, V.H., Jiang, J.H., "FTS measurements of O_2 collision-induced absorption in the 565-700 nm region using a high pressure gas absorption cell." *J. Quant. Spectrosc. & Radiat. Trans.*, 235, 232-243, 2019.
71. Ilyushin, V., Armieieva, I., Dorovskaya, O., Krapivin, I., Alekseev, E., Tudorie, M., Motienko, R.A., Margules, L., Pirali, O., Bekhtereva, E.S., Bauerecker, S., Maul, C., Sydow, C., Drouin, B.J., "The torsional fundamental band and high-J rotational spectra of the ground, first and second excited torsional states of acetone.", *J. Molec. Spectrosc.* 363, 111169, 2019.
72. Karman, T., Gordon, I.E., van der Avoird, A., Baranov, Y.I., Boulet, C., Drouin B.J., Groenenboom, G.C., Gustafsson, M., Hartmann, J.M., Kurucz, R.L., Rothman, L.R., Sun, K., Sung, K., Thalman, R., Tran, H., Wishnow, E.H., Wordsworth, R., Vigasin, A.A., Volkamer, R., van der Zande, W.J., "Update of the HITRAN collision-induced absorption section.", *Icarus*, 328, 160-175, 2019.
73. Hodges, J.T., Viallon, J., Brewer, P.J., Drouin, B.J., Gorshelev, V., Janssen, C., Lee, S., Possolo, A., Smith, M.A.H., Walden, J., Wielgosz, R.I., "Recommendation of a consensus value of the ozone absorption cross-section at 253.65 nm based on a literature review." *Metrologia*, 56(3), 034001, 2019.
74. Kim, Y., Zhang, Y., Reck, T.J., Nemchick, D.J., Chattopadhyay, G., Drouin. B., Chang, M.C.F., Tang. A., "A 183-GHz InP/CMOS-Hybrid Heterodyne-Spectrometer for Spaceborne Atmospheric Remote Sensing." *IEEE Tran. THz Sci. & Tech.*, 9(3) 313-334, 2019.

75. Birk, M., Wagner, G., Gordon, I.E., Drouin, B.J., "Ozone intensities in the rotational bands," *J. Quant. Spectrosc. & Radiat. Trans.*, 226, 60-65, 2019.
76. O'Dell, C.W., Eldering, A., Wennberg, P.O., Crisp D., Gunson, M.R., Fisher, B., Frankenburg, C., Kiel, M., Lindqvist, H., Mandrake, L., Merrelli, A., Natraj, V., Nelson, R.R., Osterman, G.B., Payne, V.H., Taylor, T.E., Wunch, D., Drouin, B.J., Oyafuso, F., Chang, A., McDuffie, J., Smyth, M., Baker, D.F., Basu, S., Chevallier, F., Crowell, S.M.R., Feng, Lv Palmer, P.I., Dubey, M., Garcia, O.E., Griffith, D.W.T., Hase, F., Iraci, L.T., Kivi, R., Morino, I., Notholt, J., Ohyama, H., Petri, C., Roehl, C.M., Sha, M.K., Strong, K., Sussmann, R., Te, Y., Uchino, O., Velazco, V.A., "Improved retrievals of carbon dioxide for Orbiting Carbon Observatory-2 with the version 8 ACOS algorithm", *Atmos. Meas. Tech.* 11(12) 6539-6576, 2018.
77. Pearson, J., Yu, S., Pearson J., Sung, K., Drouin, B., Pirali, O., "Extended measurements and an experimental accuracy effective Hamiltonian model for the $3\nu_2$ and $\nu_4+\nu_2$ states of ammonia." *J. Molec. Spectrosc.* 353, 60-66, 2018.
78. Yang, J., Schroeder, P. J., Cich, M. J., Giorgetta, F.R., Swann, W.C., Coddington, I., Newbury N.R., Drouin B.J., Rieker, G.B., "Speed-dependent Voigt lineshape parameter database from dual frequency comb measurements at temperatures up to 1305 K. Part II: Argon-broadened H_2O absorption, 6801-7188 cm^{-1}" *J. Quant. Spectrosc. & Radiat. Trans.* 217, 189-212, 2018. 10.1016/j/jqsrt.2018.05.040
79. Nemchick, D.J., Drouin, B.J., Cich, M.J., Crawford, T., Tang, A.J., Kim, Y., Reck, T.J., Schlecht, E.T., Chang, M.C.F., Virbila, G. "A 90-102 GHz CMOS based pulsed Fourier transform spectrometer: New approaches for *in situ* chemical detection and millimeter-wave cavity-based molecular spectroscopy." *Rev. Sci. Instr.* 89(7), 073109, 2018.
80. Yu, S., Drouin, B.J., Pearson, J.C., Amano, T. "THz spectroscopy of $^{12}CH^+$, $^{13}CH^+$, and CD^+: A combined Dunham analysis of Terahertz lines and A $^1\Pi_i$ – X $^1\Sigma^+$ transitions." J. Molec. Spectrosc. 350, 30-36, 2018.
81. Sung, K., Toon, G.C., Drouin, B.J., Mantz, A.W., Smith, M.A.H., "FT-IR measurements of cold propene (C_3H_6) cross-sections at temperatures between 150 and 299 K" *J. Quant. Spectrosc. & Radiat. Trans.* 213, 119-132, 2018.
82. Schroeder, P.J., Cich, M.J., Yang, J.Y., Giorgetta, F.R., Swann, W.C., Coddington, I., Newbury, N.R., Drouin, B.J., Rieker, G.B., "Speed-dependent Voigt lineshape parameter database from dual frequency comb measurements up to 1305 K. Part I: Pure H_2O absorption, 6801-7188 cm^{-1}", *J. Quant. Spectrosc. & Radiat. Trans.* 210, 240-250, 2018.
83. Tang A., Kim, Y., Reck, T., Chattopdhyay, G., Mehdi, I., Drouin, B.J., Cooper, K.B., Livesey, N. Chang, M-C.F., "DDFS and ΣΔ approaches for fractional frequency synthesis in terahertz instruments" *IEEE Trans. THz Sci. & Tech.* 8(4), 410-417, 2018.
84. Tang, A., Kim, Y., Reck, T., Tang, Y.W., Xu, Y.N., Chattopadhjyay, G., Drouin, B., Mehdi, I., Chang, M.C.F., "A 177-205 GHz 249 mW CMOS-Based Integer-N Frequency Synthesizer Module for Planetary Exploration", *IEEE Tran. THz Sci. & Tech.* 8(2), 251-254, 2018.
85. Nemchick, D.J., Drouin, B.J., Tang, A.J., Kim, Y., Chang, M-C.F., "Sub-Doppler spectroscopy with a CMOS transmitter", *IEEE Trans. THz Sci. & Tech.* 8(1), 121-126, 2018.
86. Raymond, A.W. Drouin, B.J., Tang, A., Schlecht, E., Mazur, E. "Miniature cavity for in situ millimeter wave gas sensing: N_2O and CH_3OH detection", *Sensors* and *Actuators B*: *Chemical*, 254, 763-770 2018.
87. Gordon I.E., Rothman, L.S., Hill, C., Kochanov, R.V., Tan, Y., Bernath, P.F., Birk, M., Boudon, V., Campargue, A., Chance, K.V., Drouin, B.J., Flaud, J.-M., Gamache, R.R., Hodges, J.T., Jacquemart, D., Perevalov, V.I., Perrin, A., Shine, K.P., Smith, M.-A.H., Tennyson, J., Toon, G.C., *et al.* "The HITRAN2016 molecular spectroscopic database" *J. Quant. Spectrosc. Radiat. Trans.* 203, 3-69, 2017.
88. Oyafuso, F., H. Payne, V.H., Drouin, B.J., Devi, V.M., Benner, D.C., Sung, K., Yu, S., Gordon, I.E., Kochanov, R., Tan, Y., Crisp, D., Mlawer, E.J., Guillaume, A., "High accuracy absorption coefficients for the Orbiting Carbon Observatory-2 (OCO-2) mission: Validation of updated carbon dioxide cross-sections using atmospheric spectra" *J. Quant. Spectrosc. Radiat. Trans.* 203, 213-223, 2017.

89. Tang, A.; Drouin, B.; Kim, Y.; Virbila, G.; Chang, M.-C.F. "95-105 GHz 352 mW All-Silicon Cavity-Coupled Pulsed Echo Rotational Spectroscopy System in 65 nm CMOS" *IEEE Trans. THz Sci. & Tech.* 2017 10.1109/TTHZ.2017.2692041
90. Gamache, R.R., Roller, C., Lopes, E., Gordon, I.E., Rothman, L.S., Polyansky, O.L., Zobov, N.F., A. Kyuberis, A.A., Tennyson, J., Yurchenko, S.N., Császár, A.G., Furtenbacher, T., Huang, X., Schwenke, D.W., Lee, T.J., Drouin, B.J., Tashkun, S.A., Perevalov, V.I., Kochanov, R.V., "Total internal partition sums for 166 isotopologues of 51 molecules important in planetary atmospheres: Application to HITRAN2016 and beyond", *J. Quant. Spectrosc. Radiat. Trans.* 203, 70-87, 2017.
91. Schroeder, P.J.; Cich, M.J.; Yang, J.; Swann, W.C., Coddington, I., Newbury, N. R., Drouin, B. J., Rieker, G. B.., "Broadband, high-resolution investigation of advanced absorption line shapes at high temperature" *Phys. Rev. A.* 96(2) 022514, 2017.
92. Bray, C., A. Cuisset, F. Hindle, R. Bocquet, G. Mouret, B.J. Drouin, "CH_3D photomixing spectroscopy up to 2.5 THz: New set of rotational and dipole parameters, first THz self-broadening measurements" *J. Quant. Spectrosc. & Radiat. Trans.* 189, 198-205, 2017.
93. Shu, R., J. Li, A. Tang. B.J. Drouin, Q.J. Gu, "Coupling-Inductor-Based Hybrid mm-Wave CMOS SPST Switch" *IEEE Trans. Circ. & Syst. II: Exp. Briefs*, 64(4), 367-371, 2017.
94. Domenech, J.L., B.J. Drouin, J. Cernicharo, V.J. Herrero, I. Tanarro, "The high-resolution infrared spectrum of HCl^+" *Ap. J. Letters*, 833(2) L32, 2016.
95. Yu, S., J.C. Pearson, B.J. Drouin, C.E. Miller, K. Kobayashi and F. Matsushima, "Terahertz spectroscopy of ground state $HD^{18}O$." *J. Molec. Spectrosc.* 328, 27-31, 2016.
96. Jacquinet-Husson, N. et al. "The 2015 edition of the GEISA spectroscopic database", *J. Molec. Spectrosc.* 327, 31-72, 2016.
97. Wu, D.L., J-H. Yee, E. Schlecht, I, Mehdi, J. Siles, B.J. Drouin, "THz limb sounder (TLS) for lower thermospheric wind, oxygen density, and temperature", *J. Geophys. Res. Space Phys.*, 121(7) 7301-7315, 2016.
98. Benner, D.C., V.M. Devi, K. Sung, L.R. Brown, C.E. Miller, V.H. Payne, B.J. Drouin, S. Yu, T.J. Crawford, M.A.H. Smith, A.W. Mantz, M.A.H. Smith, "Line parameters including temperature dependences of self- and air-broadened line shapes of $^{12}C^{16}O_2$: 2.06-μm region" *J. Molec. Spectrosc.* 326, 21-47, 2016.
99. Devi, V. M., D.C. Benner, K. Sung, L.R. Brown, T.J. Crawford, C.E. Miller, B.J. Drouin, V.H. Payne, S. Yu, M.A.H. Smith, A.W. Mantz, R.R. Gamache, "Line parameters including temperature dependences of self- and air-broadened line shapes of $^{12}C^{16}O_2$: 1.6-μm region" *J. Quant. Spectrosc. & Radiat. Trans.* 177, 117-144, 2016.
100. A. Tang, T. Reck, R. Shu, L. Samoska, Yangyho Kim, Y. Ye, Q. Gu, B. J. Drouin, J. Truettel, R. Al Hadi, Y. Xu, S. Sarkozy, R. Lai, M-C F. Chang, Imran Mehdi, "A W-Band 65nm CMOS/InP-hybrid radiometer & passive imager" IEEE MTT-S International Microwave Symposium (IMS), p. 1-3, 2016.
101. Dubernet, M. L., B. K. Antony, Y. A. Ba, *et al.* "The virtual atomic and molecular data centre (VAMDC) consortium", *J. Phys. B*, 49(7), 074003, 2016.
102. Muller, H.S.P., B. J. Drouin, J. C. Pearson, M. H. Ordu, N. Wehres, F. Lewen, "Rotational spectra of isotopic species of methyl cyanide, CH_3CN, in their ν_8=1 excited vibrational states", *Astron. & Astroph.*, 586 (A17), 2016.
103. Ye, Y., B. Yo, A. Tang, B. Drouin, Q.J. Gu, "A High Efficiency E-band CMOS Frequency Doubler with a Compensated Transformer-Based Balun for Matching Enhancement", *IEEE Micr. And Comp. Lett.* 26(1), 40-42, 2016.
104. Yu, S., J.C. Pearson, B.J. Drouin, T. Crawford, A.M. Daly, B. Elliott, T. Amano, "Rotational spectroscopy of vibrationally excited N_2H^+ and N_2D^+ up to 2.7 THz." *J. Molec. Spectrosc.* 314, 19-25, 2015.
105. Daly, A.M., B.J. Drouin, J.C. Pearson, K. Sung, L.R. Brown, A. Mantz, M.A.H. Smith, "The ν_{17} band of C_2H_5D from 770 to 880 cm^{-1}", *J. Molec. Spectrosc.*314, 19-25, 2015.
106. Shu R., A. Tang, B. Drouin, Q.J. Gu "A 54-84 GHz CMOS SPST Switch with 35 dB Isolation", *IEEE RFIC* p. 15 - 18, DOI: 10.1109/RFIC.2015.7337693 2015.

107. F. Hsiao, A. Tang, Y. Kim, B. Drouin, G. Chattopadhyay, M-C. F. Chang, " A 2.2 GS/s 188mW spectrometer processor in 65nm CMOS for supporting low-power THz planetary instruments", 2015 IEEE Custom Integrated Circuits Conference (CICC), 1-3, DOI.10.1109/CICC.2015.7338367

108. C. Duan, M. Carvajal, S.Yu, J.C. Pearson, B.J. Drouin and I. Kleiner, "THz extended spectrum of the monodeuterated methyl formate ($DCOOCH_3$)", *Astron. & Astrophys.* 576, A39, 2015.

109. Mueller H.S.P., L.R. Brown, B.J. Drouin, J.C. Pearson, I. Kleiner, R.L. Sams, K. Sung, M.H. Ordu, F. Lewen, "Rotational spectroscopy as a tool to investigate interactions between vibrational polyads in symmetric top molecules: Low-lying states $\nu_8 \leq 2$ of methyl cyanide, CH_3CN" *J. Molec. Spectrosc.* 312, 22-37, 2015.

110. Daly, A. M., Drouin, P. Groner, S. Yu, J.C. Pearson, "Analysis of the rotational spectrum of the ground and first torsional excited states of monodeuterated ethane, CH_3CH_2D" *J. Molec. Spectrosc.* 307, 27-32, 2015.

111. Yu, S. B.J. Drouin, C.E. Miller, "High resolution spectral analysis of oxygen. IV. Energy levels, partition sums, band constants, RKR potentials, Franck-Condon factors involving the $X\ ^3\Sigma^-_g$, $a^1\Delta_g$ and $b^1\Sigma^+_g$ states" *J. Chem. Phys.* 141(17), 174302 2014.

112. Lopez A., B. Tercero, Z. Kisiel, A. M. Daly, C. Bermudez, H. Calcutt, N. Marcelino, S. Viti, B.J. Drouin, I.R. Medvedev, C. F. Neese, L. Pszczolkowski, J. L. Alonso, J. Cernicharo, „Laboratory Characterization and Astrophysical Detection of Vibrationally Excited States of Vinyl Cyanide in Orion KL. Detection of the isocyanide species" *A&A*, 572, A44 2014.

113. Ting W-J, C-H Chang, S-E Chen, H-C Chen, J-T. Shy, B. J. Drouin, A. M. Daly, "Precision frequency measurement of N_2O transitions near 4.5 μm and above 150 μm" *Journal of the Optical Society of America – B*, 31(8), 1954-1963, 2014.

114. Hase, F., B.J. Drouin, C.M. Roehl, G.C. Toon, P.O. Wennberg, D. Wunch, T. Blumenstock, F. Desmet, D.G. Feist, P. Heikkinen, M. De Maziere, M. Rettinger, J. Robinson, M. Schneider, V. Sherlock, R. Sussmann, Y. Te, T. Warneke, C. Weinzierl, "Calibration of sealed HCl cells used for TCCON instrumental line shape monitoring" *Atmos. Meas. Tech.* 6(12), 3527-3537, 2013.

115. Daly, A.M., B.J. Drouin, S. Yu, "Submillimeter measurements of the Criegee intermediate CH_2OO, in the gas phase" *J. Molec. Spectrosc.* 297, 16-20, 2014.

116. Motiyenko R.A., V.V. Ilyushin, B.J. Drouin S. Yu, L. Margules, "Rotational spectroscopy of methylamine up to 2.6 THz" *A&A*, 563, Article Number: A137, 2014.

117. Coudert, L.H, B.J. Drouin, B. Tercero and J. Cernicharo, J.-C. Guillemin, R. A. Motiyenko, L. Margules, "First astrophysical detection, terahertz spectrum, and data base for the monodeuterated species of methyl formate $HCOOCH_2D$", *Ap. J.*, 779(2), 119, 2013.

118. Ilyushin, V.V., Smirnov, I.A., E.A Alekseev, L. Margules, R.A. Motiyenko, B. Drouin. "Spectroscopy of the ground, first and second excited torsional states of acetaldehyde from 0.05 to 1.6 THz", *J. Molec. Spectrosc.*, 295, 44-50, 2013

119. Yu, S., J.C. Pearson, B.J. Drouin, "Terahertz spectroscopy of water in its second triad." *J. Molec. Spectrosc.* 288, 7-10, 2013.

120. Rothman L.S. et al. "The HITRAN 2012 Molecular Spectroscopic Database", *J. Quant. Spectrosc. & Radiat. Trans.* 130, 4-50, 2013.

121. Ilyushin, V., C.P. Endres, F. Lewen, S. Schlemmer, B. J. Drouin, "Submillimeter wave spectrum of acetic acid", *J. Molec. Spectrosc.* 290, 31-41, 2013.

122. Cohen, E.A., B.J. Drouin, "Submillimeter wave spectrum of sulfuric acid, H_2SO_4", *J. Mol. Spectrosc.* DOI:10.1016/j.jms.2013.04.008, 2013.

123. Faure A., L. Wiesenfeld, B.J. Drouin, J. Tennyson, "Pressure broadening of water and carbon monoxide transitions by molecular hydrogen at high temperatures." *J. Quant. Spec. Radiat. Trans.* 116, 79-86, 2013.

124. Cohen, E.A., B.J. Drouin, L.R. Brown, J.J. Oh " Terahertz and infrared spectra of carbonyl fluoride, COF_2: Vibration-rotation analyses of the four lowest bands, $2\nu_6$, and ν_6 hot bands; $^{13}COF_2$ ground state and ν_6 band." *J. Quant. Spectrosc. Radiat. Trans.* 114, 13-19, 2013.

125. Pearson, J.C., S. Yu, B.J. Drouin, "The ground state torsion rotation spectrum of CH_2DOH", *J. Molec. Spectrosc.* 280, 119-133, 2012.
126. Kisiel Z., L. Pszczolkowski, B.J. Drouin, C.S. Brauer, S. Yu, J.C. Pearson, I.R. Medvedev, S. Fortman, C. Neese, "Broadband rotational spectroscopy of acrylonitrile: Vibrational energies from perturbations", *J. Molec. Spectrosc.* 280, 134-144, 2012.
127. Yu S., J. C. Pearson, B. J. Drouin, M-A. Martin-Drumel, O. Pirali, M. Vervloet, L.H. Coudert, H. S.P. Müller, S. Brünken, "Measurement and analysis of new terahertz and far-infrared spectra of high temperature water" *J. Molec. Spectrosc.* 279, 16-25, 2012.
128. Yu S., C.E. Miller, B.J. Drouin, H.S.P. Mueller, "High resolution spectral analysis of oxygen. I. Isotopically Invariant Dunham Fit for the X $^3\Sigma_g^-$, a $^1\Delta_g$, b$^1\Sigma_g^+$ States", *J. Chem. Phys.* 136, 024304, 2012.
129. De Luca, M, H. Gupta, D. Neufeld, M. Gerin, D. Teyssier, B.J. Drouin, J.C. Pearson, D.C. Lis, R. Monje, T.G. Phillips, J.R. Goicoechea, B. Godard, E. Falgarone, A. Coutens, T.A. Bell, "Herschel/HIFI Discovery of HCl^+ in the Interstellar Medium" *Ap. J. Lett.* 751(2) L37, 2012.
130. Gupta, H. B.J. Drouin, J.C. Pearson, "The Rotational Spectrum of HCl^+" *Ap. J. Lett.* 751(2) L38, 2012.
131. Ramos M., B. J. Drouin, "Submillimeter Spectrum of Methyl Bromide (CH_3Br)" *J. Molec. Spectrosc.*, 269(2), 187-192, 2011.
132. Pearson J.C., B.J. Drouin, S. Yu, H. Gupta, "Microwave Spectroscopy of Methanol between 2.48 and 2.77 THz" *J. Op. Soc. Am.*, 28(10), 2549-2577, 2011.
133. Pearson J., B. Drouin, A. Maestrini, I. Mehdi, J. Ward, R. Lin, S. Yu, J. Gill, B. Thomas, C. Lee, G. Chattopadhyay, E. Schlecht, F. Maiwald, P. Goldsmith, P. Siegel, "Demonstration of a room temperature 2.48-2.75 THz coherent spectroscopy source", *Rev. Sci. Inst.* 82(9), 093105, 2011.
134. Krasnicki A., Z. Kisiel, B. J. Drouin, J. C. Pearson, "Terahertz spectroscopy of isotopic acrylonitrile" *J. Molec. Struct.* Special Issue on THz Spectroscopy, 1006, 20-27, 2011.
135. Cohen, E.A., B.J. Drouin, "THz spectra of Formyl Fluoride, HFCO", *J. Molec. Spectrosc.*, 267, 67–70 2011.
136. Pracna P., Urban J., Votava O., Meltzerova Z., Urban S., Horneman V.M., Drouin B.J., "Rotational and rovibrational spectroscopy of CH_3NC of the ground and ν_4=1 vibrational States" *J. Phys. Chem. A* 115(6) 1063-1068, 2011.
137. Pearson J.C., Mueller H.S.P., Pickett H.M., Cohen E.A., Drouin B.J., "Introduction to submillimeter, millimeter and microwave spectral line catalog", *J. Quant. Spectrosc. Radiat. Trans.* 111(11), 1614-1616, 2010.
138. Yu S., Pearson J.C., Drouin B.J., Sung K., Pirali O., Vervloet M., Martin-Drumel M.A., Endres C.P., Shiraishi T., Kobayashi K., Matsushima F., "Submillimeter-wave and far-infrared spectroscopy of high-J transitions of the ground and ν_2=1 states of ammonia" *J. Chem. Phys.* 133(17) 174317, 2010.
139. Carroll P.B., Drouin B.J., Weaver S.L.W., "The submillimeter spectrum of glycolaldehyde", *Ap. J.*, 723(1) 845-849, 2010.
140. Braakman R., Drouin B.J., Weaver S.L.W., Blake G.A., "Extended analysis of hydroxyacetone in the torsional ground state", *J. Molec. Spectrosc.* 264(1), 43-49, 2010.
141. Kisiel Z., Dorosh O., Maeda O., Medvedev I.R., De Lucia F.C., Herbst E., Drouin B.J., Pearson J.C., Shipman, S.T., "Determination of precise relative energies of conformers of *n*-propanol by rotational spectroscopy", *Phys. Chem. Chem. Phys.*, 12, 8329–8339, 2010.
142. Dick M.J., Drouin B.J., Pearson J.C., "Collisional cooling investigation of THz rotational transitions of water." *Phys. Rev. A* 81(2), 2010.
143. Cohen E.A., Drouin B.J., Valenzuela E.A, Woods R.C., Caminati W., Maris A., Melandri S., "The rotational spectrum of tertiary-butyl alcohol." *J. Molec. Spectrosc.*, 260(1) 77-83, 2010.
144. Kisiel Z., Pszczolkowski L., Drouin B.J., Brauer C.S., Yu S., Pearson J.C., "The rotational spectrum of acrylonitrile up to 1.67 THz", *J. Molec. Spectrosc.*, 258(1-2) 26-34, 2009.

145. Mueller H.S.P., Drouin B.J., Pearson J.C., "Rotational spectra of isotopic species of methyl cyanide, CH_3CN, in their ground vibrational states up to terahertz frequencies." *A & A,* 506(3) 1487-1499, 2009.
146. Yu S., Drouin B.J., Pearson J.C., "Terahertz spectroscopy of the bending vibrations of acetylene C_2H_2" *Ap. J.*, 705(1) 786-790, 2009.
147. Endres C.P., Drouin B.J., Pearson J.C., Mueller H.S.P., Lewen F., Schlemmer S., Giesen T.F., "Dimethyl ether: laboratory spectra up to 2.1 THz Torsion-rotational spectra within the vibrational ground state" *A & A,* 504(2) 635-640, 2009.
148. Pearson J.C., C.S. Brauer, B.J. Drouin, L.H. Xu, "The rotational spectrum of methanol in the third excited torsional state" *Can. J. Phys.,* 87(5) 449-467, 2009.
149. Brauer C.S., J.C. Pearson, B.J. Drouin, S. Yu, "New Ground-State Measurements of Ethyl Cyanide", *Ap. J. Supp.,* 184(1) 133-137, 2009.
150. Yu S., B.J. Drouin, J.C. Pearson, H.M. Pickett, V. Lattanzi, A. Walters, "Terahertz spectroscopy and global analysis of the bending vibrations of acetylene C_2D_2", *Ap. J.*, 698(2) 2114-2120, 2009.
151. Dick, M. J., B. J. Drouin, T. J. Crawford, J. C. Pearson, "Pressure broadening of the J = 5 - 4 transition of carbon monoxide from 17 to 200 K: A new collisional cooling experiment.", *J. Quant. Spectrosc. Radiat. Trans.*, 110(9-10), 628-638 2009.
152. Dick, M. J., B. J. Drouin, J. C. Pearson, "A collisional cooling investigation of the pressure broadening of the 1_{10} - 1_{01} transition of water from 17K to 200K". *J. Quant. Spectrosc. Radiat. Trans.*, 110(9-10), 619-627 2009.
153. S. Wang, H. M. Pickett, T. J. Pongetti, R. Cheung, Y. L. Yung, C. Shim, Q. Li, T. Canty, R. J. Salawitch, K. W. Jucks, B. Drouin, S. P. Sander, "Validation of Aura Microwave Limb Sounder OH measurements with Fourier Transform Ultra-Violet Spectrometer total OH column measurements at Table Mountain", California, *J. Geophys. Res. – Atmos.*, 113, D22301, 2008.
154. Pickett H. M., B. J. Drouin, T. Canty, R.J. Salawitch, R.A. Fuller, V.S. Perun, N.J. Livesey, J.W. Waters, R.A. Stachnik, S.P. Sander, W.A. Traub, K.W. Jucks, K. Minschwaner, "Validation of Aura Microwave Limb Sounder OH and HO_2 measurements", *J. Geophys. Res. - Atmos.*, 113(D16) D16S30, 2008.
155. Santee M. L., A. Lambert, W. G. Read, N.J. Livesey, G.L. Manney, R.E. Cofield, D.T. Cuddy, W.H. Daffer, B.J. Drouin, L. Froidevaux, R.A. Fuller, R.F. Jarnot, B.W. Knosp, V.S. Perun, W.V. Snyder, P.C. Stek, R.P. Thurstans, P.A. Wagner, J.W. Waters, B. Connor, J. Urban, D. Murtagh, P. Ricaud, B. Barret, A. Kleinbohl, J. Kuttippurath, H. Kullmann, M. von Hobe, G.C. Toon, R.A. Stachnik, "Validation of the Aura Microwave Limb Sounder ClO measurements", *J. Geophys. Res. - Atmos.*, 113(D15) D15S22, 2008.
156. Froidevaux L., Y. B. Jiang, A. Lambert, N.J. Livesey, W.G. Read, J.W. Waters, R.A. Fuller, T.P. Marcy, P.J. Popp, R.S. Gao, D.W. Fahey, K.W. Jucks, R.A. Stachnik, G.C. Toon, L.E. Christensen, C.R. Webster, P.F. Bernath, C.D. Boone, K.A. Walker, H.C. Pumphrey, R.S. Harwood, G.L. Manney, M.J. Schwartz, W.H. Daffer, B.J. Drouin, R.E. Cofield, D.T. Cuddy, R.F. Jarnot, B.W. Knosp, V.S. Perun, W.V. Snyder, P.C. Stek, R.P. Thurstans, P.A. Wagner, "Validation of Aura Microwave Limb Sounder HCl measurements", *J. Geophys. Res. - Atmos.*, 113(D15) D15S25, 2008.
157. Froidevaux L., Y. B. Jiang, A. Lambert, N.J. Livesey, W.G. Read, J.W. Waters, E.V. Browell, J.W. Hair, M.A. Avery, T.J. Mcgee, L.W. Twigg, G.K. Sumnicht, K.W. Jucks, J.J. Margitan, B. Sen, R.A. Stachnik, G.C. Toon, P.F. Bernath, C.D. Boone, K.A. Walker, M.J. Filipiak,, R.S. Harwood, R.A. Fuller, G.L. Manney, M.J. Schwartz, W.H. Daffer, B.J. Drouin, R.E. Cofield, D.T. Cuddy, R.F. Jarnot, B.W. Knosp, V.S. Perun, W.V. Snyder, P.C. Stek, R.P. Thurstans, P.A. Wagner, "Validation of Aura Microwave Limb Sounder stratospheric ozone measurements", *J. Geophys. Res. - Atmos.*, 113(D15) D15S20, 2008.
158. Schwartz M. J., A. Lambert, G. L. Manney, W.G. Read, N.J. Livesey, L. Froidevaux, C.O. Ao, P.F. Bernath, C.D. Boone, R.E. Cofield, W.H. Daffer, B.J. Drouin, E.J. Fetzer, R.A. Fuller, R.F. Jarnot, J.H. Jiang, Y.B. Jiang, B.W. Knosp, K. Kruger, J.-L.F. Li, M.G. Mlynczak, S. Pawson, J.M. Russell, M.L. Santee, W.V. Snyder, P.C. Stek, R.P. Thurstans, A.M. Tompkins, P.A. Wagner, K.A. Walker, J.W.

Waters, D.L. Wu, "Validation of the aura microwave limb sounder temperature and geopotential height measurements", *J. Geophys. Res. - Atmos.*, 113 (D15) D15S11, 2008.

159. Livesey N. J., M. J. Filipiak, L. Froidevaux, W.G. Read, A. Lambert, M.L. Santee, J.H. Jiang, H.C. Pumphrey, J.W. Waters, R.E. Cofield, D.T. Cuddy, W.H. Daffer, B.J. Drouin, R.A. Fuller, R.F. Jarnot, Y.B. Jiang, B.W. Knosp, Q.B. Li, V.S. Perun, M.J. Schwartz, W.V. Snyder, P.C. Stek, R.P. Thurstans, P.A. Wagner, M. Avery, E.V. Browell, J.P. Cammas, L.E. Christensen, G.S. Diskin, R.S. Gao, H.J. Jost, M. Loewenstein, J.D. Lopez, P. Nedelec, G.B. Osterman, G.W. Sachse, C.R. Webster, "Validation of Aura Microwave Limb Sounder O_3 and CO observations in the upper troposphere and lower stratosphere", *J. Geophys. Res. - Atmos.*, 113 (D15) D15S02, 2008.
160. Yu S., B. J. Drouin, J. C. Pearson, H. M. Pickett, "Terahertz spectroscopy and global analysis of H_3O^+", *Ap. J. Supp.*, 125:1-6, 2008.
161. Petkie D.T., M. Kipling, A. Jones, P. Helminger, I.R. Medvedev, A. Maeda, M. Behnke, B. J. Drouin, C.E. Miller. "The rotational spectra of the 6_1, 7_1, 8_1, 9_1 and $5_1/9_2$ vibrational states of $H^{15}NO_3$", *J. Molec. Spectrosc.*, 251(1-2), 1-3, 2008.
162. Halfen D.T., L. M. Ziurys, J. C. Pearson, B. J. Drouin, "Direct measurements of the fundamental rotational transitions of CD and ^{13}CH $X_2\Pi_{i(r)}$" *Ap. J.*, 687(1), 731-736, 2008.
163. Lattanzi V., A. Walters, J.C. Pearson, B. J. Drouin, "THz spectrum of monodeuterated methane," *J. Quant. Spectrosc. Radiat. Trans.*, 109 (4): 580-586, 2008.
164. Lattanzi V., A. Walters, B. J. Drouin, J. C. Pearson, "Submillimeter Spectrum of Formic Acid" *Ap. J. Supp.*176(2), 536-542, 2008.
165. Xu L-H., J. Fisher, R.M. Lees, H.Y. Shi, J.T. Hougen, J.C. Pearson, B.J. Drouin, G.A. Blake, R. Braakman, "Torsion-Rotation Global Analysis of the First Three Torsional States (v_t = 0, 1, 2) and Terahertz Database for Methanol", *J. Molec. Spectrosc.*, 251(1-2), 1-3, 2008.
166. Pearson J.C., C. S. Brauer, B. J. Drouin, "The Asymmetric Top-Asymmetric Frame Internal Rotation Spectrum of Ethyl Alcohol", *J. Molec. Spectrosc.*, 251(1-2), 1-3, 2008.
167. Groner G., I. R. Medvedev, F. C. De Lucia, B. J. Drouin, "Rotational spectrum of acetone, CH3COCH3, in the ν_{17} torsional excited state", *J. Molec. Spectrosc.*, 251(1-2), 1-3, 2008.
168. Santee M. L., A. Lambert, W. G. Read, N.J. Livesey, R.E. Cofield, D.T. Cuddy, W.H. Daffer, B.J. Drouin, L. Froidevaux, R.A. Fuller, R.F. Jarnot, B.W. Knosp, G.L. Manney, V.S. Perun, W.V. Snyder, P.C. Stek, R.P. Thurstans, P.A. Wagner, J.W. Waters, G. Muscari, R.L. de Zafra, J.E. Dibb, D.W. Fahey, P.J. Popp, T.P. Marcy, K.W. Jucks, G.C. Toon, R.A. Stachnik, P.F. Bernath, C.D. Boone, K.A. Walker, J. Urban, D. Murtagh, "Validation of the Aura Microwave Limb Sounder HNO_3 measurements", *J. Geophys. Res. - Atmos.*, 112 (D24) D24S40, 2007.
169. Read W. G., A. Lambert, J. Bacmeister, R.E. Cofield, L.E. Christensen, D.T. Cuddy, W.H. Daffer, B.J. Drouin, E. Fetzer, L. Froidevaux, R. Fuller, R. Herman, R.F. Jarnot, J.H. Jiang, Y.B. Jiang, K. Kelly, B.W. Knosp, L.J. Kovalenko, N.J. Livesey, H.C. Liu, G.L. Manney, H.M. Pickett, H.C. Pumphrey, K.H. Rosenlof, X. Sabounchi, M.L. Santee, M.J. Schwartz, W.V. Snyder, P.C. Stek, H. Su, L.L. Takacs, R.P. Thurstans, H. Vomel, P.A. Wagner, J.W. Waters, C.R. Webster, E.M. Weinstock, D.L. Wu, "Aura Microwave Limb Sounder upper tropospheric and lower stratospheric H_2O and relative humidity with respect to ice validation", *J. Geophys. Res. - Atmos.*, 112 (D24) D24S35, 2007.
170. Kovalenko L. J., N. L. Livesey, R. J. Salawitch, C. Camy-Peyret, M.P. Chipperfield, R.E. Cofield, M. Dorf, B.J. Drouin, L. Froidevaux, R.A. Fuller, F. Goutail, R.F. Jarnot, K. Jucks, B.W. Knosp, A. Lambert, I.A. MacKenzie, K. Pfeilsticker, J.P. Pommereau, W.G. Read, M.L. Santee, M.J. Schwartz, W.V. Snyder, R. Stachnik, P.C. Stek, P.A. Wagner, J.W. Waters, "Validation of Aura Microwave Limb Sounder BrO observations in the stratosphere", *J. Geophys. Res. - Atmos.*, 112 (D24) D24S41, 2007.
171. Jiang Y. B., L. Froidevaux, A. Lambert, N.J. Livesey, W.G. Read, J.W. Waters, B. Bojkov, T. Leblanc, I.S. McDermid, S. Godin-Beekmann, M.J. Filipiak, R.S. Harwood, R.A. Fuller, W.H. Daffer, B.J. Drouin, R.E. Cofield, D.T. Cuddy, R.F. Jarnot, B.W. Knosp, V.S. Perun, M.J. Schwartz, W.V. Snyder, P.C. Stek, R.P. Thurstans, P.A. Wagner, M. Allaart, S.B. Andersen, G. Bodeker, B. Calpini, H. Claude, G. Coetzee, J. Davies, H. De Backer, H. Dier, M. Fujiwara, B. Johnson, H. Kelder, N.P. Leme, G. Konig-Langlo, E. Kyron, G. Laneve, L.S. Fook, J. Merrill, G. Morris, M. Newchurch, S. Oltmans, M.C. Parrondos, F. Posny, F. Schmidlin, P. Skrivankova, R. Stubi, D. Tarasick, A. Thompson, V. Thouret, P.

Viatte, H. Vomel, P. von Der Gathen, M. Yela, G. Zablocki, “Validation of Aura Microwave Limb Sounder Ozone by ozonesonde and lidar measurements”, *J. Geophys. Res. - Atmos.*, 112 (D24) D24S34, 2007.

172. Lambert A., W. G. Read, N. J. Livesey, M.L. Santee, G.L. Manney, L. Froidevaux, D.L. Wu, M.J. Schwartz, H.C. Pumphrey, C. Jimenez, G.E. Nedoluha, R.E. Cofield, D.T. Cuddy, W.H. Daffer, B.J. Drouin, R.A. Fuller, R.F. Jarnot, B.W. Knosp, H.M. Pickett, V.S. Perun, W.V. Snyder, P.C. Stek, R.P. Thurstans, P.A. Wagner, J.W. Waters, K.W. Jucks, G.C. Toon, R.A. Stachnik, P.F. Bernath, C.D. Boone, K.A. Walker, J. Urban, D. Murtagh, J.W. Elkins, E. Atlas, “Validation of the Aura Microwave Limb Sounder middle atmosphere water vapor and nitrous oxide measurements”, *J. Geophys. Res. - Atmos.*, 112 (D24) D24S36, 2007.
173. Bruenken S., H. S. P. Mueller, C. Endres, F. Lewen, T. Giesen, B. Drouin, J. C. Pearson, H. Maeder, "High resolution rotational spectroscopy on D_2O up to 2.7 THz in its ground and first excited bending states", *Phys. Chem. Chem. Phys.*, 9 (17): 2103-2112, 2007.
174. Lattanzi, V., A. Walters, B. J. Drouin, J. C. Pearson, "Rotational spectrum of the formyl cation, HCO^+, to 1.2 THz", *Ap. J.*, 662 (1): 771-778 Part 1, 2007.
175. Froidevaux, L., N. J. Livesey, W. G. Read, R. J. Salawitch, J. W Waters, B. Drouin, I. A. MacKenzie, H. C. Pumphrey, P. Bernath, C. Boone, R. Nassar, S. Montzka, J. Elkins, D. Cunnold, D. Waugh, "Temporal decrease in upper atmospheric chlorine," *Geophys. Res. Lett.*, 33 (23): L32812, 2006.
176. Froidevaux L., N. J. Livesey, W. G. Read, Y. B. Jiang, C. C. Jimenez, M. J. Filipiak, M. J. Schwartz, M. L. Santee, H. C. Pumphrey, J. H. Jiang, D. L. Wu, G. L. Manney, B. J. Drouin, J. W. Waters, E. J. Fetzer, P. F. Bernath, C. D. Boone, K. A. Walker, K. W. Jucks, G. C. Toon, J. J. Margitan, B. Sen, C. R. Webster, L. E. Christensen, J. W. Elkins, E. Atlas, R. A. Lueb, R. Hendershot, "Early validation analyses of atmospheric profiles from EOS MLS on the Aura satellite," *IEEE Trans. Geosci. Rem. Sens.*, 44 (5): 1106-1121, 2006.
177. Pickett, H. M., B. J. Drouin, T. Canty, L. J. Kovalenko, R. J. Salawitch, N. J. Livesey, W. G. Read, J. W. Waters, K. W. Jucks and W. A. Traub, “Validation of Aura MLS HO_x Measurements with Remote-Sensing Balloon Instruments”, *Geophys. Res. Lett.*, 33(1), L01808, 2006
178. Pearson J. C., B. J. Drouin "Laboratory measurement of the J=1-0 transition of CH^+" *Astrophysical Journal*, 647 (1): L83-L86, 2006.
179. Groner, P., E. Herbst, F. C. De Lucia, B. J. Drouin, H. Maeder, "Rotational spectrum of acetone, CH_3COCH_3, in the first torsional excited state," *J. Molec. Spectrosc.* 795 (1-3): 173-178, 2006.
180. Fry J. L., B. J. Drouin, C. E. Miller, "Rotational spectroscopy and dipole moment of cis-cis HOONO and DOONO," *J. Chem. Phys.* 124 (8): Art. No. 084304, 2006.
181. Pearson, J.C., B. J. Drouin, "The ground state torsion-rotation spectrum of propargyl alcohol ($HCCCH_2OH$)," *J. Molec. Spectrosc.*, 234 (1), p. 149-156, 2005.
182. Oh J. J., B. J. Drouin, E. A. Cohen, "The rotational spectrum of perchloric acid, $HClO_4$," *J. Molec. Spectrosc.*, 234 (1), p. 10-24, 2005.
183. Subramanian R., C. Karunatilaka, R. O. Schock, B. J. Drouin, P. A. Cassak, S. G. Kukolich, "Determination of structural parameters for ferrocenecarboxaldehyde using Fourier transform microwave spectroscopy," *J. Chem. Phys.* 123 (5): Art. No. 054317, 2005.
184. Weaver S. L. W., R. A. H. Butler, B. J. Drouin, D. T. Petkie, K. A. Dyl, F. C. De Lucia, G. A. Blake, "Millimeter-wave and vibrational state assignments for the rotational spectrum of glycolaldehyde," *Ap. J. Supp.*, 158 (2): 188-192, 2005.
185. Yamada M. M., M. Kobayashi, T. Habara, T. Amano, B. J. Drouin, Submillimeter-wave measurements of the pressure broadening of BrO, *J. Quant. Spectrosc. Radiat. Trans.*, 82 (1-4): 391-399, 2003.
186. Widicus S. L., B. J. Drouin, K. A. Dyl, G. A. Blake, Millimeter wavelength measurements of the rotational spectrum of 2-aminoethanol, *J. Molec. Spectrosc.*, 217 (2): 278-281, 2003.
187. Groner P., S. Albert, E. Herbst, F. C. De Lucia, F. J. Lovas, B. J. Drouin, J. C. Pearson, Acetone: Laboratory assignments and predictions through 620 GHz for the vibrational-torsional ground state, *Ap. J. Supp.*, 142 (1): 145-151, 2002.
188. Toon G. C., J.-F. Blavier, B. Sen and B. J. Drouin, Atmospheric $COCl_2$ measured by solar occultation spectrometry, *Geophys. Res. Lett.*, 28 (14): 2835-2838, 2001.

189. Miller C. E. and B. J. Drouin, "The $X_1\ ^2\Pi_{3/2}$ and $X_2\ ^2\Pi_{1/2}$ Potential Energy Surfaces of FO". *The J. Molec. Spectrosc.*, 205(2), 312-318, 2001.
190. Kukolich S. G., B. J. Drouin, O. Indris and J. J. Dannemiller, J. P. Zoller and W. A. Herrmann, "Microwave spectra, DFT calculations and molecular structure of acetylenemethyldioxorhenium", *J. Chem. Phys.*, 113, 7891-7900, 2000.
191. Lavaty T. G., P. Wikrent, B. J. Drouin, S.G. Kukolich, "Microwave measurements and calculations on the molecular structure of tetracarbonyldihydroruthenium", *J. Chem. Phys.*, 109(21), 9473-9478, 1998.
192. Kukolich S. G., B. J. Drouin, P. Cassak, J.L. Hubbard, "Microwave measurements and calculations on cyclopentadienylrhodium dicarbonyl, a V-10 hindered rotor", *Organometallics*, 17(18), 4105-4109, 1998.
193. Wikrent P., B. J. Drouin, S. G. Kukolich, J.C. Lilly, M.T. Ashby, W.A. Herrmann, W. Scherer, "Measurements of the structure of methyltrioxorhenium using microwave spectroscopy", *J. Chem. Phys.*, 107(7), 2187-2192, 1997.
194. Sickafoose S. M., P. Wikrent, B. J. Drouin, S.G. Kukolich, "Microwave spectra and quadrupole coupling measurements for methyl rhenium trioxide", *Chem. Phys. Lett.*, 263(1-2), 191-196, 1996.

Brian Drouin – Conference Papers

195. Akins A., Drouin, B., Steffes, P., Mannucci, A., Ao, C., "Laboratory Measurements of L Band Oxygen Opacity Applicable to GNSS Remote Sensing", IEEE *Int. Geosci. Rem. Sens. Symp.* 2024.
196. Egbert, S.C., Coburn, S.C., Sung, K., Drouin, B.J., Rieker, G.B. "High-resolution Dual Comb Spectroscopy to Validate High-temperature H_2O Absorption Models" Conference on Lasers and Electro-Optics (CLEO) Year: 2023 | Conference Paper | Publisher: IEEE
197. Z. Yang, X. Chen, X. Huang, T. L'Ecuyer and B. Drouin, "A Fast Neural Network-Based Approach for Joint MID-IR and FAR-IR Surface Spectral Emissivity Retrieval," IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena, CA, USA, 2023, pp. 5324-5327, doi: 10.1109/IGARSS52108.2023.10281903.
198. Kenyon, M.E., Eom, B.H., Mariani, G., Drouin, B., "Uncooled Infrared/Far-Infrared Thermopile Arrays for Space-Borne, Remote-Sensing Radiometry" IEEE Research and Applications of Photonics in Defense Conference (RAPID)"
199. Cooper, K.B., Pradhan, O., Nemchick, D.J., Dengler, R.J., Siles, J., Monje, R.R., Lee, C., Tang, A., Drouin, B., Tamppari, L., "First Outdoor Measurements of a Submillimeter-Wave Differential Absorption Radar", 2022 47th International Conference on Infrared, Millimeter and Terahertz Waves (IRMMW-THz)
200. Cooper, K.B., Drouin, B., Pradhan, O., Siles, J., Monje, R.R., Nemchick, D.J., Dengler, R.J., Tamppari, L., "Measuring the 557 GHz Water Vapor Absorption Line with Radar Speckle Averaging" 2022 IEEE/MTT-S International Microwave Symposium - IMS 2022.
201. Cooper, K. B., Roy, R.J. Siles, J., Lebsock, M., Millan, L., Rodriguez-Monje, R., Dengler, R., Pradhan, O., Tamppari, L, Drouin, B., "Millimeter- and Submillimeter-wave Differential Absorption Radar", *2020 17th European Radar Conference (EuRAD)*, 2021.
202. Nemchick, D.J.; Drouin, B.J.; Tang, A.J.; Kim, Y.; Alonso, M.; Chang, M.C.F., "180 GHz CMOS pulsed transmitter and heterodyne receiver pair for in-situ chemical detections" *Proceedings of the 31st Symposium on Space Terahertz Technology, ISSTT* 2020 2-s2.0-85109049071, 9781713829447
203. Pradhan, O., Cooper, K., Tamppari L., Drouin, B., Monje, R., Roy, R., Siles, J., Cochrane, C., "Submillimeter Wave Differential Absorption Radar for Water Vapor Sounding in the Martian Atmosphere", *IGARS 2020 – 2020 IEEE International Geoscience and Remote Sensing Symposium, 2020*.
204. Wang, X., Korzh, B.A., Weigel, P.O., Nemchick, D.J., Drouin, B.J., Fung, A., Becker, W., Zhao, Q.-Y., Zhu, D., Colangelo, M., Dane, A.E., Berggren, K.K., Shaw, M.D., Mookherjea, S., "Oscilloscopic Capture of 100 GHz Modulated Optical Waveforms at Femtowatt Power Levels" *2019 Optical Fiber Communications Conference and Exhibition (OFC)*.

205. Padmanabhan, S., Drouin, B., L'Ecuyer T., White, M., Lim. B., Kenyon, M., Mariani, G., McGuire J., Raouf, N., De Santos, O., Bendig, R., "The Polar Radiant Energy in the Far-InfraRed Experiment (PREFIRE)," *IGARSS 2019 – 2019 IEEE International Geoscience and Remote Sensing Symposium*
206. Mariani, G., Kenyon, M., Eom, Byeong, Drouin, B., White, M., "Far-Infrared Room-Temperature Focal Plane Modules for Polar Radiant Energy in the Far InfraRed Experiment," *2019 44th International Conference on Infrared, Millimeter and Terahertz Waves (IRMMW-THz)*.
207. Schroeder, P.; Cich, M.; Yang, J.; Drouin, B.; Cole, R.; Draper, A.; Rieker, G. "Study of high temperature absorption lineshapes using frequency comb lasers", *2018 Spring Technical Meeting of the Western States Section of the Combustion Institute, WSSCI*.
208. Raymond, A.W.; Drouin, B.J.; Tang, A.; Schlecht, E.; Kim, Y.; Chang, M.-C.F. "In situ gas sensing with a 100 GHz CMOS spectrometer", *IEEE Aero. Conf. Proc.* 2017 10.1109/AERO.2017.7943881
209. Ilyushin, V.; Armieieva, I.; Dorovskaya, O.; Alekseev, E.; Tudorie, M.; Motienko, R.A.; Margules, L.; Drouin, B.; Pirali, O. "The torsional fundamental band and submillimeter wave spectrum of acetone", 9th International Kharkiv Symposium on Physics and Engineering of Microwaves, Millimeter and Submillimeter Waves, MSMW 2016, 10.1109/MSMW.2016.7538092
210. Mercury, M., B. Drouin, E. Brageot, R. Beatty, R. Green, P. Mouroulis, G. Stephens, R. Duren, F. Rogers, H. Rosen, D. Gerwe "Monitoring Earth's Shortwave Reflectance: LEO and GEO System Architectures", *IEEE Aerospace* 2015.
211. Plavchan, P.; Gao, P.; Gagne, J.; Furlan, E.; Brinkworth, C.; Bottom, M.; Tanner, A.; Anglada-Escude, G.; White, R.; Davison, C. et al. "Precise Near-Infrared Radial Velocities", Proceedings of the International Astronomical Union 2015, 10.1017/S1743921315006468
212. Smirnov, I.A., E.A Alekseev, V.V. Ilyushin, L. Margules, R.A. Motiyenko, B. Drouin. "Spectroscopy of the ground, first and second excited torsional states of acetaldehyde from 0.05 to 1.6 THz", Physics and Engineering of Microwaves, Millimeter and Submillimeter Waves (MSMW), 2013 International Kharkov Symposium on, 495-497, 2013
213. Pearson, J.C., K. Cooper, B.J. Drouin. "Spectroscopic detection, fundamental limits and system considerations" Infrared, Millimeter and Terahertz Waves, 2008. IRMMW-THz 2008. 33rd International Conference on, 1-2, 2008.
214. Xu; L-H, H. Shi, J. Fisher, R.M. Lees, J.C. Pearson, B.J. Drouin, "New Terahertz Methanol Spectroscopy for HIFI on the Herschel Mission", Infrared Millimeter Waves and 14th International Conference on Teraherz Electronics, 2006. IRMMW-THz 2006. Joint 31st International Conference on, 228, 2006.

Brian Drouin – Contributed White Papers for Decadal Surveys

215. Fortney et al. "The Need for Laboratory Measurements and Ab Initio Studies to Aid Understanding of Exoplanetary Atmospheres" Submitted as an Astro2020 Science White Paper, https://doi.org/10.48550/arXiv.1905.07064
216. Tamppari, L.K. et al., "Terrestrial Planets Comparative Climatology (TPCC) mission concept", Submitted as a Planetary Science White Paper, https://doi.org/10.48550/arXiv.2007.03049
217. Fayolle, E. et al. "Critical Laboratory Studies to Advance Planetary Science and Support Missions", Submitted as a Planetary Science White Paper, https://doi.org/10.48550/arXiv.2009.12465

Brian Drouin - Non-refereed First Author Publications

218. Drouin B.J., H.S.P. Muller "Special issue dedicated to the pioneering work of Drs. Edward A. Cohen and Herbert M. Pickett on spectroscopy relevant to the Earth's atmosphere and astrophysics," *J. Mol. Spec.* , 251(1-2), 1-3, 2008.

219. Drouin, B. J. "Rotational spectroscopy at the Jet Propulsion Laboratory," Proceedings of the NATO Advanced Research Workshop on Remote Sensing for Environmental Security, held in Rabat, Morocco, November 17-November 19, 2005, *NATO Security through Science Series C: Environmental Security*, Vol. 10.
220. Drouin B. J., G. Wlodarczak , J.-M. Colmont, F. Rohart, "Current status of quantitative rotational spectroscopy for atmospheric research," *Proc. Int. Workshop Crit. Eval. mm-/sub-mm- Spectrosc. Data Atmos. Obs*, Ibaraki, Mito, Japan, January 2004.
221. Drouin B. J., H. M. Pickett, "Laboratory and field studies in rotational spectroscopy at the Jet Propulsion Laboratory," *Proc. Int. Workshop Crit. Eval. mm-/sub-mm- Spectrosc. Data Atmos. Obs*., Ibaraki, Mito, Japan, January 2004:
222. Drouin B. J., W. R. Read, "Microwave session, rapporteur summary," NASA workshop on Future Needs for Atmospheric Remote Sensing, San Diego, California, USA, October 2001.