

John L. Bohn

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Education

University of Chicago, Ph.D. in Physics, June 1995

Thesis Title: Development of Ridge Resonances in Helium

Thesis Advisor: Ugo Fano

University of Chicago, B.S. 1988 in Mathematics.

Professional Recognition

University of Colorado Physics Department Teaching Award, 2024.

American Physical Society Outstanding Referee, 2008.

(No, really! See <http://publish.aps.org/OutstandingReferees>)

Fellow of the American Physical Society, 2003.

National Research Council Research Associate, NIST, 1995-97.

Bloomenthal Fellow, University of Chicago, 1993-94.

Academic Positions

Research Professor, Department of Physics, University of Colorado, 2008-present.

Fellow, JILA, 2002- present.

Associate Research Professor, University of Colorado, 2004-2007.

Assistant Research Professor, University of Colorado, 2000-2004.

Associate Fellow, JILA, 2000-2002.

Assistant Professor, Attendant Rank, University of Colorado, 1999-2000.

Senior Research Associate, JILA, 1997-2000.

Lecturer, Department of Physics, University of Colorado, 1997-99.

National Research Council Research Associate, NIST, Boulder, CO 1995-97.

Research Assistant, University of Chicago, 1987-88, 1990-95.

Member, DAMOP, American Physical Society

Member, American Association of Physics Teachers

Publications

John L. Bohn

Journal Articles

1. *Extracting Dynamics from Collision Data I: Analysis of Integral Angular Momentum*
J. Bohn and U. Fano, Phys. Rev. A **41**, 5953 (1990).
2. *Observable Characteristics of Pure Quantum States*
J. Bohn, Phys. Rev. Lett. **66**, 1547 (1991).
3. *Phase-Amplitude Method Applied to Doubly-Excited States of He($1S^e$)*
J. Bohn, Phys. Rev. A **49**, 3761 (1994).
4. *Multichannel Quantum Mechanics as a Hamiltonian Phase Flow*
J. Bohn and U. Fano, Phys. Rev. A **50**, 2893 (1994).
5. *Total Phase Description of Multiparticle Quantum Systems*
J. L. Bohn, Phys. Rev. A **51**, 1110 (1995).
6. *Fragmentation of Atomic Systems*
J. L. Bohn and U. Fano, Phys. Rev. A **53**, 4014 (1996).
7. *Semianalytic Treatment of Two-Color Photoassociation Spectroscopy and Control of Cold Atoms*
J. L. Bohn and P. S. Julienne, Phys. Rev. A **54**, R4637 (1996).
8. *Theory of Transport through an Array of Devices with Transverse Exit Leads*
J. L. Bohn, Phys. Rev. B **56**, 4132 (1997).
9. *Hartree-Fock Theory of Double Condensates*
B. D. Esry, C. H. Greene, J. P. Burke, and J. L. Bohn, Phys. Rev. Lett. **78**, 3594 (1997).
10. *Impact of the ^{87}Rb Singlet Scattering Length on Suppressing Inelastic Collisions*
J. P. Burke, J. L. Bohn, B. D. Esry, and C. H. Greene, Phys. Rev. A **55**, R2511 (1997).
11. *Prospects for Influencing Scattering Lengths with Far-off-Resonant Light*
J. L. Bohn and P. S. Julienne, Phys. Rev. A **56**, 1486 (1997).
12. *Dominance of Short-range Correlations in Photoejection-induced Excitation Processes*
K. W. Meyer, J. L. Bohn, C. H. Greene, and B. D. Esry, J. Phys. B **30**, L641 (1997).
13. *Prospects for Mixed-isotope Bose-Einstein Condensates in Rubidium*
J. P. Burke, J. L. Bohn, B. D. Esry, and C. H. Greene, Phys. Rev. Lett. **80**, 2097 (1998).

14. *Effective Potentials for Bose-Einstein Condensates*
J. L. Bohn, B. D. Esry, and C. H. Greene, Phys. Rev. A **58**, 584 (1998).
15. *Multichannel Cold Collisions: Simple Dependences on Energy and Magnetic Field*
J. P. Burke, C. H. Greene, and J. L. Bohn, Phys. Rev. Lett. **81**, 3355 (1998).
16. *Geometry and Symmetries of Multiparticle Systems*
U. Fano, D. Green, J. L. Bohn, and T. Heim, J. Phys. B **32**, R1 (1999).
17. *Ultracold Scattering Properties of the Short-Lived Rubidium Isotopes*
J. P. Burke and J. L. Bohn, Phys. Rev. A **59**, 1303 (1999).
18. *Collisional Properties of Ultracold Potassium: Consequences for Degenerate Bose and Fermi Gases*
J. L. Bohn, J. P. Burke, C. H. Greene, H. Wang, P. L. Gould, and W. C. Stwalley, Phys. Rev. A **59**, 3660 (1999).
19. *Semianalytic Theory of Laser-Assisted Resonant Cold Collisions*
J. L. Bohn and P. S. Julienne, Phys. Rev. A **60**, 414 (1999).
20. *Measurement of p-wave Threshold Law Using Evaporatively Cooled Fermionic Atoms*
B. DeMarco, J. L. Bohn, J. P. Burke, M. Holland, and D. S. Jin, Phys. Rev. Lett. **82**, 4208 (1999).
21. *Determination of ^{39}K Scattering Lengths Using Photoassociation Spectroscopy of the 0_g^- State*
J. P. Burke, C. H. Greene, J. L. Bohn, H. Wang, P. L. Gould, and W. C. Stwalley, Phys. Rev. A **60**, 4417 (1999).
22. *Molecular Spin Relaxation in Cold Atom-Molecule Scattering*
J. L. Bohn, Phys. Rev. A **61**, 040702 (2000).
23. *Collisions Near Threshold Involving Atoms and Molecules*
H. Sadeghpour, J. L. Bohn, M. J. Cavagnero, B.D. Esry, I. I. Fabrikant, J. Macek, and A. R. P. Rau, J. Phys. B **33**, R93 (2000).
24. *Cooper Pairing in Ultracold ^{40}K Using Feshbach Resonances*
J. L. Bohn, Phys. Rev. A **61**, 053409 (2000).
25. *Cold Collisions of O_2 with Helium*
J. L. Bohn, Phys. Rev. A **62**, 032701 (2000).

26. *Ground State Scattering Lengths for Potassium Isotopes Determined by Double-Resonance Photoassociative Spectroscopy of Ultracold ^{39}K*
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27. *Many-Body Coulomb Problem in the Phase-Energy Representation*
J. L. Bohn, *Physics Essays* **13**, 350 (2000).
28. *Inelastic Collisions of Ultracold Polar Molecules*
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29. *Ultracold Collisions of Oxygen Molecules*
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30. *Nature of Spinor Bose-Einstein Condensates in Rubidium*
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31. *Field Enhancement in Apertureless Near-Field Scanning Optical Microscopy*
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32. *Resonant Control of Elastic Collisions in an Optically Trapped Fermi Gas of Atoms*
T. Loftus, C. A. Regal, C. Ticknor, J. L. Bohn, and D. S. Jin, *Phys. Rev. Lett.* **88**, 173201 (2002).
33. *Magnetic Field Effects in Ultracold Molecular Collisions*
A. Volpi and J. L. Bohn, *Phys. Rev. A* **65**, 052712 (2002).
34. *Molecular Vibration in Ultracold Collision Theory*
A. Volpi and J. L. Bohn, *Phys. Rev. A* **65**, 064702 (2002).
35. *Collisional Dynamics of Ultracold OH Molecules in an Electrostatic Field*
A. V. Avdeenkov and J. L. Bohn, *Phys. Rev. A* **66**, 052718 (2002).
36. *Rotational Feshbach Resonances in Ultracold Molecular Collisions*
J. L. Bohn, A. V. Avdeenkov, and M. P. Deskevich, *Phys. Rev. Lett.* **89**, 203202 (2002).
37. *Linking Ultracold Polar Molecules*
A. V. Avdeenkov and J. L. Bohn, *Phys. Rev. Lett.* **90**, 043006 (2003).
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38. *Tuning p-wave Interactions in an Ultracold ^{40}K Gas*
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42. *Field-Linked States of Ultracold Polar Molecules*
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M. Greiner, C. A. Regal, C. Ticknor, J. L. Bohn, and D. S. Jin, *Phys. Rev. Lett.* **92**, 150405 (2004).
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49. *Pair Wave Functions in Atomic Fermi Condensates*
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50. *Long-Range Scattering Resonances in Strong-Field-Seeking States of Polar Molecules*
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51. *Bose-Fermi Mixtures Near an Interspecies Feshbach Resonance: Testing a Nonequilibrium Approach*
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52. *Suppression of Inelastic Collisions of Polar $^1\Sigma$ State Molecules in an Electrostatic Field*
A. V. Avdeenkov, M. Kajita, and J. L. Bohn, Phys. Rev. A **73**, 022707 (2006).
53. *Production of Cold Formaldehyde Molecules for Study and Control of Chemical Reaction Dynamics with Hydroxyl Radicals*
E. R. Hudson, C. Ticknor, B. C. Sawyer, C. A. Taatjes, H. J. Lewandowski, John L. Bohn, and J. Ye, Phys. Rev. A **73**, 063404 (2006).
54. *Candidate Molecular Ions for an Electron Electric Dipole Experiment*
E. R. Meyer, M. P. Deskevich, and J. L. Bohn, Phys. Rev. A **73**, 062108 (2006).
55. *Stability of Fermionic Feshbach Molecules in a Bose-Fermi Mixture*
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58. *Scattering Length Instability in Dipolar Bose Gases*
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M. Lara, J. L. Bohn, D. E. Potter, P. Soldan, and J. M. Hutson, Phys. Rev. A **75**, 012704 (2007).
62. *Radial and Angular Rotons in Trapped Dipolar Gases*
S. Ronen, D. C. E. Bortolotti, and J. L. Bohn, Phys. Rev. Lett. **98**, 030406 (2007).
63. *p-Wave Feshbach Molecules*
J. P. Gaebler, J. T. Stewart, J. L. Bohn, and D. S. Jin, Phys. Rev. Lett. **98**, 200403 (2007).
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K. Kanjilal, J. L. Bohn, and D. Blume, Phys. Rev. A **75**, 052705 (2007).

65. *Magneto-Electrostatic Trapping of Ground State OH Molecules*
B. C. Sawyer, B. L. Lev, E. R. Hudson, B. K. Stuhl, M. Lara, J. L. Bohn, and J. Ye, Phys. Rev. Lett. **98**, 253002 (2007).
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S. Ronen and J. L. Bohn, Phys. Rev. A **76**, 043607 (2007).
67. *Manifestations of the Roton Mode in Dipolar Bose-Einstein Condensates*
R. M. Wilson, S. Ronen, J. L. Bohn, and H. Pu, Phys. Rev. Lett. **100**, 245302 (2008).
68. *Prospects for an Electron Electric Dipole Moment Search in Metastable ThO and ThF⁺*
E. R. Meyer and J. L. Bohn, Phys. Rev. A **78**, 010502 (2008).
69. *Influence of a Humidor on the Aerodynamics of Baseballs*
E. R. Meyer and J. L. Bohn, American Journal of Physics **76**, 1015 (2008).
70. *Loss of Molecules in Magneto-Electrostatic Traps Due to Non-adiabatic Transitions*
M. Lara, B. L. Lev, and J. L. Bohn, Phys. Rev. A **78**, 033433 (2008).
71. *Dynamical Pattern Formation During Growth of a Dual-Species Bose-Einstein Condensate*
S. Ronen, J. L. Bohn, L. E. Halmø, and M. Edwards, Phys. Rev. A **78**, 053613 (2008).
72. *Generalized Mean-Field Approach to a Resonant Bose-Fermi Mixture*
D. C. E. Bortolotti, A. V. Avdeenkov, and J. L. Bohn, Phys. Rev. A **78**, 063612 (2008).
73. *Stability and Excitations of a Dipolar Bose-Einstein Condensate with a Vortex*
R. M. Wilson, S. Ronen, and J. L. Bohn, Phys. Rev. A **79**, 013621 (2008).
74. *Quasi-Universal Dipolar Scattering in Cold and Ultracold Gases*
J. L. Bohn, M. Cavagnero, and C. Ticknor, New. J. Phys. **11**, 055039 (2009).
75. *Angular Collapse of Dipolar Bose-Einstein Condensates*
R. M. Wilson, S. Ronen, and J. L. Bohn, Phys. Rev. A **80**, 023614 (2009).
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76. *EDM Searches Based on Alkali or Alkaline-Earth Bearing Molecules*
E. R. Meyer and J. L. Bohn, Phys. Rev. A **80**, 042508 (2009).
77. *An Electron Electric Dipole Moment Search in the $X^3\Delta_1$ Ground State of Tungsten Carbide Molecules*
J. Lee, E. R. Meyer, R. Paudel, J. L. Bohn, and A. E. Leanhardt, J. Mod. Optics **56**, 2005 (2009).
78. *Berry-like Phases in Structured Atoms and Molecules*
E. R. Meyer, A. Leanhardt, E. A. Cornell, and J. L. Bohn, Phys. Rev. A **80**, 062110 (2009).

79. Controlling the Hyperfine State of Ro-vibronic Ground-State Polar Molecules

S. Ospelkaus, K.-K. Ni, G. Quéméner, B. Neyenhuis, D. Wang, M. H. G. de Miranda, J. L. Bohn, J. Ye, and D. S. Jin, Phys. Rev. Lett. **104**, 030402 (2010).

80. Strong Dependence of Ultracold Chemical Reaction Rates on Electric Dipole Moments

G. Quéméner and J. L. Bohn, Phys. Rev. A **81**, 022702 (2010).

81. Quantum-State Controlled Chemical Reactions of Ultracold Potassium-Rubidium Molecules

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85. Electric-Field Suppression of Ultracold Confined Chemical Rates

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86. A Simple Quantum Model of Ultracold Polar Molecule Collisions

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87. Product-state Control of Bi-alkali Chemical Reactions

E. R. Meyer and J. L. Bohn, Phys. Rev. A **82**, 042702 (2010).

88. Dynamics of Ultracold Molecules in Confined Geometry and Electric Field

G. Quéméner and J. L. Bohn, Phys. Rev. A **83**, 012705 (2011).

89. Anisotropic Superfluidity in a Dipolar Bose Gas

C. Ticknor, R. M. Wilson, and J. L. Bohn, Phys. Rev. Lett. **106**, 065301 (2011).

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R. M. Wilson and J. L. Bohn, Phys. Rev. A **83**, 023623 (2011).

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92. *Chemical Pathways in Ultracold Reactions of SrF Molecules*
E. R. Meyer and J. L. Bohn, Phys. Rev. A **83**, 032714 (2011).
93. *High-resolution spectroscopy on trapped molecular ions in rotating electric fields: A new approach for measuring the electron electric dipole moment*
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G. Quémener, J. L. Bohn, A. Petrov, and S. Kotochigova, Phys. Rev. A **84**, 062703 (2011).
95. *A Dielectric superfluid of Polar Molecules*
R. M. Wilson, S. T. Rittenhouse, and J. L. Bohn, New J. Phys **14**, 043018 (2012).
96. *Statistical Aspects of Ultracold Resonant Scattering*
M. Mayle, B. P. Ruzic, and J. L. Bohn, Phys. Rev. A **85**, 062712 (2012).
97. *Roton Immiscibility in a Two-Component Dipolar Bose Gas*
R. M. Wilson, C. Ticknor, J. L. Bohn, and E. Timmermans, Phys. Rev. A **86**, 033606 (2012).
98. *Evaporative Cooling of the Dipolar Radical OH*
B. K. Stuhl, M. T. Hummon, M. Yeo, G. Quémener, J. L. Bohn, and J. Ye, Nature **492**, 396 (2012).
99. *Scattering of Ultracold Molecules in the Highly Resonant Regime*
M. Mayle, G. Quémener, B. Ruzic, and J. L. Bohn, Phys. Rev. A **87**, 012709 (2013).
100. *Quantum Defect Theory for High Partial Wave Cold Collisions*
B. P. Ruzic, C. H. Greene, and J. L. Bohn, Phys. Rev. A **87**, 032706 (2013).
101. *Stability Spectroscopy of Rotons in a Dipolar Gas*
J. P. Corson, R. M. Wilson, and J. L. Bohn, Phys. Rev. A **87**, 051605(R) (2013).
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103. *Geometric Stability Spectra of Dipolar Bose Gases in Tunable Optical Lattices*
J. P. Corson, R. M. Wilson, and J. L. Bohn, Phys. Rev. A **88**, 013614 (2013).
104. *Ultracold Molecular Collisions in Combined Electric and Magnetic Fields*
G. Quémener and J. L. Bohn, Phys. Rev. A **88**, 012706 (2013).
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H. Loh, K. Cossel, M. Grau, K.-K. Ni, E. Meyer, J. L. Bohn, J. Ye, and E. Cornell, Science **342**, 1220 (2013).

106. *Long-Lived Complexes and Chaos in Ultracold Molecular Collisions*
J. F. E. Croft and J. L. Bohn, Phys. Rev. A **89**, 012714 (2014).
107. *Quenching to Unitarity: Quantum Dynamics in a 3D Bose Gas*
A. G. Sykes, J. P. Corson, J. P. D’Incao, A. P. Koller, C. H. Greene, A. M. Rey, K. R. A. Hazzard, and J. L. Bohn, Phys. Rev. A **89**, 021601(R) (2014).
108. *Differential Scattering and Rethermalization in Ultracold Dipolar Gases*
J. L. Bohn and D. S. Jin, Phys. Rev. A **89**, 022702 (2014, Feb. 5).
109. *Quantum Chaos in Ultracold Collisions of Erbium*
A. Frisch, M. Kiyotaka, F. Ferlaino, J. L. Bohn, C. Makrides, A. Petrov, and S. Kotochigova, Nature **507**, 475 (2014).
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117. *Radio-Frequency Spectrum of the Feshbach Molecular State to Deeply Bound Molecular States in Ultracold ^{40}K Fermi Gases*
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J. P. Corson and J. L. Bohn, Phys. Rev. A **94**, 023604 (2016).
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J. L. Bohn, A.-M. Rey, and J. Ye, Science **357**, 1002 (2017, 8 Sept.).
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M. L. González-Martínez, J. L. Bohn, and G. Quéméner, Phys. Rev. A **96**, 032718 (2017, 27 Sept.).
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L. D. Augustovičová and J. L. Bohn, Phys. Rev. A **96**, 042712 (2017, 18 Oct.).
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127. *Manifestations of Quantum Chaos in Fano-Feshbach Resonances*
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129. *Stable Production of a Strongly-Interacting Bose-Einstein Condensate via Mode-matching*
E. J. Halperin, M. W. C. Sze, J. P. Corson, and J. L. Bohn, Phys. Rev. A **100**, 013608 (2019, 11 July).
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131. *A Unified Model of Ultracold Molecular Collisions*
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132. *Ultracold Collisions of the Lithium Monoxide Radical*
L. D. Augustovičová and J. L. Bohn, Phys. Rev. A **102**, 033314 (2020, 9 Sept.).

133. *Linear Response of a Periodically Driven Thermal Dipolar Gas*
R. R. W. Wang, A. G. Sykes, and J. L. Bohn, Phys. Rev. A **102**, 033336 (2020, 28 Sept.).
134. *Quench-Produced Solitons in a Box-Trapped Bose-Einstein Condensate*
E. J. Halperin and J. L. Bohn, Phys. Rev. Res. **2**, 043256 (2020, 19 Nov.).
135. *Magnetic Moments of Lanthanide van der Waals Dimers*
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136. *Anisotropic Thermalization of Dilute Dipolar Gases*
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137. *Tuning of Dipolar Interactions and Evaporative Cooling in a Three-Dimensional Molecular Quantum Gas*
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R. R. W. Wang and J. L. Bohn, Phys. Rev. A **106**, 023319 (2022, 25 Aug.).
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149. *Sticking Lifetime of Ultracold CaF Molecules in the Triplet State*
D. Sardar and J. L. Bohn, J. Phys. Chem. A **127**, 4815 (2023, May 25).
150. *Electro-Association of Ultracold Dipolar Molecules into Tetramer Field-Linked States*
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151. *Viscous dynamics of a quenched trapped dipolar Fermi gas*
R. R. W. Wang and J. L. Bohn, Phys. Rev. A **108**, 013322 (2023, Jul. 31).
152. *Merging Dipolar Superfluids in a Double-Well Potential*
H. Li, E. Halperin, S. Ronen, and J. L. Bohn, Phys. Rev. A **109**, 013307 (2024, Jan. 5).
153. *Prospects for Thermalization of Microwave-Shielded Ultracold Molecules*
R. R. W. Wang and J. L. Bohn, Phys. Rev. Res. **6**, L022033 (2024, May 6).
154. *Probability distributions of atomic scattering lengths*
J. L. Bohn and R. R. W. Wang, Can. J. Phys. **102**, 1-8 (2024, Aug. 14) [dx.doi.org/10.1139/cjp-2023-0263](https://doi.org/10.1139/cjp-2023-0263).
155. *Simulations of Evaporation to Deep Fermi Degeneracy in Microwave-Shielded Molecules*
R. R. W. Wang, S. Biswas, S. Eppelt, F. Deng, X.-Y. Luo, and J. L. Bohn, Phys. Rev. A **110**, 043309 (2024, Oct. 10).
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A. N. Carroll, H. Hirzler, C. Miller, D. Welnitz, S. R. Muleady, J. Lin, K.P. ZamarSKI, R. R. W. Wang, J. L. Bohn, A. M. Rey, and J. Ye, Science (submitted, 2024).
157. *Hyperfine-to-Rotational Energy Transfer in Ultracold Atom-Molecule Collisions*
Yi-Xiang Liu, Lingbang Zhu, Jeshurun Luke, Mark C. Babin, Kang-Kuen Ni, Timur V. Tscherbul, Marcin Gronowski, Hela Ladjimi, Michal Tomza, and John L. Bohn, (Nat. Chem. Submitted, 2024).
158. *Project 158 (working title)*

Miscellaneous non-refereed things

1. *Collisional Robustness of Ultracold Molecular Gases*

J. L. Bohn, A. V. Avdeenkov, and A. Volpi, in *Interactions of Cold Atoms and Molecules*, P. Soldan, M. T. Cvitas, J. M. Hutson, and C. S. Adams, eds (Daresbury: CCP6, 2003), p. 54.

2. *Prospects for Bose-Einstein Condensation in Ultracold Molecules*

J. L. Bohn, A. V. Avdeenkov, and A. Volpi, published in *Laser Physics* **13**, 1091 (2003).

3. *Field-Linked States in Ultracold Molecular Collisions*

J. L. Bohn and A. V. Avdeenkov, published in *Physica Scripta* **T110**, 292 (2004).

4. *Electric Field Spectroscopy of Ultracold Polar Molecular Dimers*

J. L. Bohn and C. Ticknor, in *Proceedings of the XVII International Conference on Laser Spectroscopy*, E.A. Hinds, A. Ferguson, E. Riis, eds., (World Scientific, 2005), p. 207.

5. *How Does a Dipolar Bose-Einstein Condensate Collapse?*

J. L. Bohn, R. M. Wilson, and S. Ronen, *Proceedings of the 17th International Laser Physics Conference*, published in *Laser Physics* **19**, 547 (2009).

6. *Work Smarter, Not Harder: Scientists Use Machine Learning Algorithms to Streamline Quantum Chemistry Calculations*

J. L. Bohn, Perspective Article in *New J. Phys.* **21**, 021001 (2019).

7. *Chaos and Dynamical Systems, D. P. Feldman, Reviewed by J. L. Bohn, Am. J. Phys.* **88**, 335 (2020).

8. *Cold Chemistry: Introduction to the Very Special Issue*

J. L. Bohn and H. J. Lewandowski, *J. Phys. Chem. A* **38**, 7869 (2023).

Book Chapter

Electric Dipoles at Ultralow Temperatures

J. L. Bohn, in *Cold Molecules: Theory, Experiment, Applications*, R. V. Krems, W. C. Stwalley, and B. Friedrich, eds (2009, CRC Press).

Book

A Student's Guide to Analytical Mechanics

J. L. Bohn (2018, Cambridge University Press).

Available wherever fine books are sold!

Invited Presentations

John L. Bohn

Phase-Amplitude Method in Helium

Workshop on New Developments in Two-Electron Atoms and Ions, JILA, Boulder, CO, July 1992.

Wave Function Evolution for Two-Electron Atoms on the Real Axis

Workshop on Complex R-Plane Techniques, Charlottesville, VA, October 1993.

Development of Ridge Resonances in Helium

Workshop on Two-Electron Processes in Photon-Helium Interactions, JILA, Boulder, CO, January 1996.

Collisional Properties of Ultracold ^{40}K : Consequences for Degenerate Fermi Gases

Workshop on Collisions of Cold, Trapped Atoms, JILA, Boulder, CO, November 1997.

How to Win Friends and Influence Cold Atoms

Kansas State University, March 1998.

How to Win Friends and Influence Cold Atoms

ITAMP Workshop on Threshold Phenomena, Cambridge, MA, June 1998.

Two, Three, Many: Hyperspherical Coordinate Representations of Several-Body Phenomena

ITAMP Workshop on Threshold Phenomena, Cambridge, MA, June 1998.

K-Harmonic Representation of Dilute Bose-Einstein Condensates

Workshop on Hyperspherical Harmonic Methods in Atomic, Molecular, and Nuclear Theory, Institute for Nuclear Theory, Seattle, WA, January 1999.

Molecular Spin Relaxation in Cold Atom-Molecule Collisions

Workshop on Trapping, Spectroscopy, and Collisions of Ultracold Molecules, ITAMP, Cambridge, MA, July 1999.

Cold Collisions of Potassium at the Turn of the Millennium

European Laboratory for Nonlinear Spectroscopy (LENs), University of Florence, Italy, September 1999.

Chemistry of Ultracold Atomic and Molecular Gases

University of Colorado Chemical Physics Colloquium, November 1999.

Cold Collisions of Atoms and Molecules

University of Oregon Department of Physics, Eugene, Oregon, February 2000.

As the Molecules Turn: Collisions in an Ultracold Molecular Gas

JILA Colloquium, Boulder, Colorado, November 2001.

As the Molecules Turn: Collisions in an Ultracold Molecular Gas

Center for Ultracold Atoms Seminar, Harvard University, Cambridge, Massachusetts, January 2002.

Prospects for BEC in Ultracold Molecules

Laser Physics 2002 Workshop, Bratislava, Slovakia, July 2002.

Linking Ultracold Polar Molecules

Resonances and Reflections: Profiles of Ugo Fano's Physics and its Influences, ITAMP, Cambridge, Mass, July 2002.

Electric Field Control of Ultracold Polar Molecules

DAMOP 2003, Boulder, CO, May 2003.

When a Body Meets a Body: Cold Collisions in an Ultracold Molecular Gas

Gordon Research Conference, Tilton, NH, June 2003.

Field-Linked States of Ultracold Polar Molecules

XXIII ICPEAC Meeting, Stockholm, Sweden, July 2003.

When Good Molecules Go Bad: Inelastic Cold Collisions in External Fields

Another ITAMP Workshop on Cold Molecules, Cambridge, MA, January 2004.

Ultracold Collisions: From Atoms to Molecules

Workshop on "Bose-Einstein Condensation: From Atoms to Molecules," University of Durham, Durham, England, March 2004.

Dipole-Bound Molecular Dimers

228th Meeting of the American Chemical Society, Philadelphia PA, August 2004.

Things That Go Bump in the Cold

University of Connecticut Atomic Physics Seminar, Storrs, CT, November 2004.

Taming the Sleeping Dragon: Control over Collisions in an Ultracold Gas

International Seminar on Atomic Processes, Zushi, Japan, January 2005.

Electromagnetic Fields in Action: Controlling Cold Collisions of Molecules

69th Annual Meeting of the Deutsche Physikalische Gesellschaft, Berlin, March 2005.

Electric Field Spectroscopy of Ultracold Molecular Dimers

17th International Conference of Laser Spectroscopy, Aviemore, Scotland, June 2005.

Electric Field Spectroscopy of Ultracold Molecular Dimers

Telluride Science Research Workshop on Ultracold Molecules, Telluride, CO, July 2005.

Manipulation of Cold Polar Molecules Using Electric Fields

EU Training School on “Achievements and Perspective of Cold Molecules,” Les Houches, France, March 2006.

Stability of Dipolar Condensates Revisited

Workshop on “Correlated Many-Body Phenomena in Dipolar Systems”, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, June 2006.

Polar Molecules: New Angles in Ultracold Matter

10th U.S.-Japan Workshop, Breckenridge, CO, August 2006.

Cold Collisions: Calamity and Control

Heraeus Seminar on Cold Molecules, Bad Honnef, Germany, October 2006.

Better Chemistry Through Dipoles

Atomic Physics Seminar, University of Kentucky, Lexington, KY, February 2008.

Physics of Baseball at a Mile High

Public lecture, University of Colorado, March 15, 2008.

Better Chemistry Through Dipoles

University of Colorado Physics Colloquium, Boulder, CO, May 2008.

Coming Together, Falling Apart: Instability in a Dipolar BEC

17th International Laser Physics Workshop (LPHYS '08), Trondheim Norway, July 2008.

A Little Dipole Goes a Long Way: Electric Control of Ultracold Collisions

6th Congress of the International Society for Theoretical Chemical Physics, Vancouver, July 2008.

Coming together, Falling Apart: Instability in a Dipolar BEC

Theoretical Physics Seminar, Colorado School of Mines, Golden, CO, Sept. 2008.

Which Way is Up? Basic Physics of Dipolar Bose-Einstein Condensates

JILA Colloquium, Boulder, CO, Feb. 2009.

Which Way is Up? Or, How a BEC Lives with Dipolar Interactions

AMO Physics seminar, University of Illinois, Urbana, IL, Feb. 2009.

Which Way is Up? Or, How a BEC Lives with Dipolar Interactions

Joint Atomic Physics Colloquium, ITAMP, Cambridge, MA, Mar. 2009.

Collapse of Dipolar BEC's: What Can We Learn?

International Workshop on Ultracold Atoms and Molecules, National Tsing-Hua University
Hsinchu, Taiwan, March 2009.

Better Chemistry Through Dipoles

Seminar at the Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan
April 2009.

Which Way is Up? Or, How a BEC Lives with Dipolar Interactions

Physics Colloquium, Washington State University, Pullman, WA, April 2009.

Quantum Physics of the Dipolar Interaction

Aspen Center for Physics, Aspen, CO, June 2009.

Chemistry on Demand: How Low Temperatures, Fermi Statistics, Electric Fields, and Optical Lattices Can Conspire to Influence Reaction Rates

Workshop on Coherence in Ultracold Molecular Physics, Vancouver, BC, May 2010.

Chemistry on Demand: How Low Temperatures, Fermi Statistics, Electric Fields, and Optical Lattices Can Conspire to Influence Reaction Rates

EUROQUAM Workshop on Quantum Cold Matter: Achievements and Prospects, Ischgl, Austria, Sept. 2010.

Control of Ultracold Chemistry

Meeting of the Optical Society of America (and Laserfest!), Rochester, NY, Oct. 2010.

Toward Dipolar Bose Liquids, Part I: Stability

APS March Meeting, Dallas, TX, March 2011.

An Introduction to the Physics of Dipolar Quantum Gases by Means of Pretty Pictures

Gordon Conference, Mount Snow, VT, June 2011.

Ultracold Molecules as Quantum Molecular Beams

Conference on the Dynamics of Molecular Collisions, Snowbird, UT, July 2011.

Crash, Bang, Boom! Cold Collisions in the Über-Resonant Regime

Yet Another Cold Molecule Workshop, ITAMP, Cambridge, MA, Oct. 2011.

Dipolar Superfluids: New Angles in Condensed Matter

ABC Seminar, University of Washington, Seattle, Feb. 2012.

Ultracold Molecules as Quantum Molecular Beams, or Chemistry at Absolute Zero
Chemistry Colloquium, University of Nevada Las Vegas, March 2012.

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International Conference on Quantum Gases of Polar Molecules and Magnetic Atoms,
Tsinghua University, Beijing, August 2012.

Ultracold Collisions in the Überresonant Regime
Workshop on Cold and Ultracold Molecules, Obergurgl, Austria, November 2012.

Ultracold Collisions in the Überresonant Regime
Workshop on New Science with Ultracold Atoms, KITP, Santa Barbara, CA, March 2013.

Ultracold Molecules as Quantum Molecular Beams, or Chemistry at Absolute Zero
Chemical Physics Colloquium, University of Colorado, March 2013.

Ultracold Collisions in the Überresonant Regime
AMO Physics seminar, UCLA, Los Angeles, April 2013.

Quantum Physics of Ultracold Atoms
Science Boot Camp for Librarians, Boulder, CO, June 2013.

Who Put the “U” in the Unitary Bose Gas?
Center for Ultracold Atoms seminar, Cambridge, MA, March 2014.

Ultracold Molecules: More Resonances than You can Shake a Stick at
Frontiers of Cold Matter, Joint Quantum Institute, College Park, MD, May 2014.

Nonequilibrium Dynamics of an Ultracold Dipolar Gas
Conference on Cold and Controlled Molecules and Ions, Locarno, Switzerland, Sept. 2014.

Will It Stick? The Influence of Many Resonance on Few Bodies
Workshop on “The Few and the Many in Ultracold Physics”, Orsay, France, November 2014.

Control of Cold Molecules
Workshop on New Directions in Cold Chemical Physics, JILA, July 2015.

Molecular Velcro: Sticking in Ultracold Molecular Collisions
Dynamics of Molecular Collisions XXV, Asilomar, CA, July 2015.

Peering into the Depths: The Hidden World of Ultracold Atoms and Molecules
Center for Theory of Quantum Matter, Boulder, CO, Sept. 2015.

Dipolar Shielding of Ultracold Polar Molecules

Universität Stuttgart, July 2017.

Ground State of the Resonant Bose Gas

Center for Ultracold Atoms Seminar, Cambridge, MA June 2018.

Ground State of the Resonant Bose Gas

LPHYS'18 Meeting, Nottingham, England, July 2018.

Rocky Mountain High: The Physics of Baseball at Elevation

50th Annual DAMOP Meeting, Milwaukee, WI, May 2019.

Ultracold Collisions of Polyatomic CaOH Molecules

10th Congress of the ISTCP, Tromsø, Norway, July 2019.

Rocky Mountain High: The Physics of Baseball at Elevation

Saturday Physics Series, University of Colorado, Boulder, CO Sept. 2019.

The 2019 Dalgarno Memorial Lectures, Harvard University, Oct. 2019:

The Electric Beaker: Prospects for Controlling Chemistry in an Ultracold Gas, Oct. 7.

Every Dipole Has Its Moment, Oct. 8.

Agents of Shield: Protecting Molecules from Inelastic Collisions, Oct. 10.

What's Taking So Long in There? On the Epic Lifetimes of Ultracold Collision Complexes

Center for Ultracold Atoms Seminar, MIT, Oct. 2021.

What Happens in the Complex Stays in the Complex: On the Epic Lifetimes of Ultracold Collision Complexes

Workshop on Molecular Condensates in Physics and Chemistry, Chicago (virtual), Feb. 2022.

Things that Go Bump in the Cold

Physics Colloquium, University of Nevada, Reno, April 2022.

Slow as Molasses: Viscosity of Ultracold Dipolar Gases

ITAMP Workshop on Laser Cooled Molecules, Cambridge, MA, October 2022.

You shall not pass! Shielding and control of ultracold collisions

DAMOP 2023, Spokane, WA, June 2023.

Electro-Association of Field-Linked Tetramer States in Ultracold Gases

Dynamics of Molecular Collisions 28th Meeting, Snowbird, UT, July 2023.

Ultracold Molecules: Collisions and Interactions

DAMOP Graduate Student Seminar, Fort Worth, TX, June 2024.

How to Win Friends and Influence Ultracold Molecules

Physcis Department Colloquium, University of Oklahoma, Jan. 2025.

Other:

Organizer of a symposium on Ultracold Molecules, AAAS Meeting, Denver, Feb. 2003.

Organizer of the Student Symposium at the 2003 DAMOP Meeting, Boulder, CO, May 2003.

DAMOP Fellowship Committee, 2004-06.

Member of the CU Wizards group, bringing science to K-12 children.

Member of the organizing committee, Annual Meeting of the Four Corners Section of the APS, 2005.

DAMOP softball committee, 2006-2011.

APS Few-Body Group Nominating Committee, 2008.

Co-Organizer, Colorado Cold Molecule (COCOMO) Workshop, Boulder, July 15-17, 2009.

Co-Organizer, Workshop on Ultracold Molecules, National Institute for Theoretical Physics, Stellenbosch, South Africa, November 2011.

Member, Editorial Board, Physical Review A, 2014-2019.

Visiting Mad Scientist, Laboratoire Aime Cotton, Orsay, France, November 2014.

Visiting Scientist, Universität Stuttgart, July 2017.

Consulting Editor, American Journal of Physics, 2020-

ITAMP Advisory Board, 2021-