

Resume of Eite Tiesinga

General Information

Name : Dr. Eite Tiesinga
Address : Joint Quantum Institute &
National Institute of Standards and Technology
100 Bureau Drive, MS 8423
Gaithersburg, MD 20899-8423
email : eite.tiesinga@nist.gov
tiesinga@umd.edu

Education

September 1984 - December 1988

Undergraduate student at the University of Groningen, Groningen, The Netherlands.

January 1989 - January 1993

PhD Graduate student at the Eindhoven University of Technology, Eindhoven, The Netherlands.

Professional Experience

May 1994 - April 1997

Guest researcher at the National Institute of Standards and Technology, Atomic Physics Division, Gaithersburg, Maryland.

June 1997 - February 2000

Research associate at the University of Maryland, Department of Chemistry and Biochemistry College Park, Maryland

February 2000 - July 2001

Contractual Researcher at the National Institute of Standards and Technology, Atomic Physics Division, Gaithersburg, Maryland.

July 2001 - present

Physicist at the National Institute of Standards and Technology, Atomic Physics Division, Gaithersburg, Maryland.

September 2006 - present

Adjunct Professor at the Joint Quantum Institute, Department of Physics, University of Maryland, College Park, Maryland.

November 2014 - 2020

Fellow of the Joint Center for Quantum Information and Computer Science, UMIACS, University of Maryland, College Park, Maryland.

July 2017 - present

Member of the CODATA Task Group on Fundamental Constants.

List of publications

1. E. Tiesinga, H.T.C. Stoof, and B.J. Verhaar, *Reflection of hydrogen atoms from the surface of superfluid helium*, Physical Review B **41**, 8886 (1990).
2. E. Tiesinga, H.T.C. Stoof, B.J. Verhaar and S.B. Crampton, *Spin-exchange frequency shift of the cryogenic deuterium maser*, Physica D **165&166**, 19 (1990).
3. E. Tiesinga, S.J.M. Kuppens, B.J. Verhaar, and H.T.C. Stoof, *Collisions between cold ground-state Na atoms*, Physical Review A **43**, 5188 (1991).
4. E. Tiesinga, B.J. Verhaar, H.T.C. Stoof and D. van Bragt, *Spin-exchange frequency shift in a cesium fountain*, Physical Review A **45**, 2671 (1992).
5. E. Tiesinga, A.J. Moerdijk, B.J. Verhaar, and H.T.C. Stoof, *Conditions for Bose-Einstein condensation in magnetically trapped cesium*, Physical Review A **46**, R1167 (1992).
6. E. Tiesinga, B.J. Verhaar and H.T.C. Stoof, *Threshold and resonance phenomena in ultracold ground-state collisions*, Physical Review A **47**, 4114 (1993).
7. E. Tiesinga, S.B. Crampton, B.J. Verhaar, and H.T.C. Stoof, *Collisional frequency shifts and line broadening in the cryogenic deuterium maser*, Physical Review A **47**, 4342 (1993).
8. H.M.J.M. Boesten, B.J. Verhaar, and E. Tiesinga, *Quantum suppression of collisional loss rates in optical traps*, Physical Review A **48**, 1428 (1993).
9. E. Tiesinga, *Comment on: "Elastic scattering of hydrogen atoms at low temperatures"*, Physical Review A **48**, 4801 (1993).
10. E. Tiesinga, A.J. Moerdijk, B.J. Verhaar, and H.T.C. Stoof, BEC in ultra-cold cesium: Collisional constraints, *Bose-Einstein Condensation*, edited by A. Griffin, D.W. Snoke, and S. Stringari (Cambridge University Press 1995) p. 465.

11. C.J. Williams, E. Tiesinga, and P.S. Julienne, *Hyperfine structure of the $\text{Na}_2 0_g^-$ long-range molecular state*, Physical Review A **53**, R1939 (1996).
12. K.M. Jones, P.S. Julienne, P.D. Lett, W.D. Phillips, E. Tiesinga, and C.J. Williams, *Measurement of the atomic $\text{Na}(3P)$ lifetime and of retardation in the interaction between two atoms bound in a molecule*, Europhysics Letters **35**, 85 (1996).
13. E. Tiesinga, C.J. Williams, P.S. Julienne, K.M. Jones, P.D. Lett, and W.D. Phillips, *A spectroscopic determination of scattering lengths for sodium atom collisions*, Journal of Research of the National Institute of Standards and Technology, **101**, 505 (1996).
14. P.S. Julienne, F.H. Mies, E. Tiesinga and C.J. Williams, *Collisional Stability of double Bose condensates*, Physical Review Letters **78**, 1880 (1997).
15. X. Wang, H. Wang, P.L. Gould, W.C. Stwalley, E. Tiesinga, and P.S. Julienne, *Observation of the Pure Long-Range 1_u state of an alkali-metal dimer by photoassociative spectroscopy*, Physical Review A, **57**, 4600 (1998).
16. E. Tiesinga, C.J. Williams, and P.S. Julienne, *Photoassociative spectroscopy of highly excited vibrational levels of alkali dimers: Green function approach for eigenvalue solvers*, Physical Review A, **57**, 4257 (1998).
17. P.S. Julienne, K.M. Jones, P.D. Lett, W.D. Phillips, E. Tiesinga, U. Volz, and C.J. Williams, *Atomic collisions in Ultra-cold atomic gases, Photonic, electronic and atomic collisions*, edited by F. Aumayr and H. Winter (World Scientific, Singapore, 1998).
18. P.J. Leo, E. Tiesinga, P.S. Julienne, D.K. Walter, S. Kadlecik, T.G. Walker, *Elastic and Inelastic Collisions of Cold Spin-Polarized ^{133}Cs Atoms*, Physical Review Letters **81**, 1389 (1998).
19. K.-A. Suominen, E. Tiesinga, and P.S. Julienne, *Nonadiabatic dynamics in evaporative cooling of trapped atoms by a radio frequency field*, Physical Review A **38**, 3983 (1998).
20. G.H. Rawitscher, B.D. Esry, E. Tiesinga, J.P. Burke, I. Koltracht, *Comparison of numerical methods for the calculation of cold atom collisions*, Journal of Chemical Physics, **111**, 10418 (1999).
21. C.J. Williams, E. Tiesinga, P.S. Julienne, H. Wang, W.C. Stwalley, and P.L. Gould, *Determination of the scattering lengths of ^{39}K from 1_u photoassociation lineshapes*, Physical Review A **60**, 4427 (1999).
22. K.M. Jones, P.D. Lett, E. Tiesinga, and P.S. Julienne, *Fitting line shapes in photoassociation spectroscopy of ultracold atoms: A useful approximation*, Physical Review A **61**, 012501 (2000).
23. F.H. Mies, E. Tiesinga, and P.S. Julienne, *Manipulation of Feshbach Resonances in Ultracold Atomic Collisions using Time-dependent Magnetic Fields*, Physical Review A **61**, 022721 (2000).

24. S. Kotochigova, E. Tiesinga, and I. Tupitsyn, *Nonrelativistic ab-initio calculation of the interaction potentials between metastable Ne atoms*, Physical Review A **61**, 042712 (2000).
25. S. Kotochigova, E. Tiesinga, and I. Tupitsyn, *Relativistic Valence bond theory and its application to metastable Xe₂*, in *New Trends in Quantum Systems in Chemistry and Physics*, edited by J. Maruani, C. Minot, R. McWeeny, Y.G. meyers, and S. Wilson (Kluwer Academic, Dordrecht, The Netherlands, 2001), Vol 1, p. 219.
26. E. Tiesinga, C.J. Williams, F.H. Mies, and P.S. Julienne, *Interacting atoms under strong quantum confinement*, Physical Review A **61** 063416 (2000).
27. S.D. Gensemer, P.L. Gould, P.J. Leo, E. Tiesinga, and C.J. Williams, *Ultracold ⁸⁷Rb Ground-State Hyperfine-Changing Collisions in the Presence and Absence of Laser Light*, Physical Review A, **62**, 030702 (2000).
28. H. Wang, A. N. Nikolov, J. R. Ensher, P.L. Gould, E. E. Eyler, and W. C. Stwalley, J.P. Burke Jr., J. L. Bohn, Chris. H. Greene, E. Tiesinga, C. J. Williams and P. S. Julienne, *Ground State Scattering Length of ³⁹K Determined by Double-Resonance Photoassociative Spectroscopy*, Physical Review A, **62**, 052704 (2000).
29. S. Kotochigova, E. Tiesinga, and P.S. Julienne, *Relativistic ab-initio treatment of the second-order spin-orbit splitting of the $a^3\Sigma_u^+$ potential of rubidium and cesium dimers*, Physical Review A **63**, 012517 (2000).
30. C. Samuelis, E. Tiesinga, T. Laue, M. Elbs, H. Knöckel, and E. Tiemann, *Cold atomic collisions studied by molecular spectroscopy*, Physical Review A, **63**, 012710 (2000).
31. E. Charron, E. Tiesinga, F. Mies, and C. Williams, *Quantum gates using motional states in an optical lattice*, Quantum communication, Computing, and Measurement 3, Editors P. Tombesi and O. Hirota (Kluwer Academic, Plenum Publishers, 2001).
32. T. Laue, E. Tiesinga, C. Samuelis, H. Knöckel, E. Tiemann, *Magnetic field imaging of weakly bound levels of the ground state Na₂ dimer*, Physical Review A, **65**, 023412 (2002).
33. E. Charron, E. Tiesinga, F. Mies, and C. Williams, *Optimizing a phase gate using quantum interference*, Physical Review Letters **88**, 077901 (2002).
34. K. Burnett, P.S. Julienne, P.D. Lett, E. Tiesinga, and C.J. Williams, *Quantum encounters of the ultra cold kind*, Nature **416**, 21 (2002).
35. C. McKenzie, J. Hecker Denschlag, H. Häffner, A. Browaeys, Luís E.E. de Araujo, F.K. Fatemi, K.M. Jones, J.E. Simsarian, D. Cho, A. Simoni, E. Tiesinga, P.S. Julienne, K. Helmerson, P.D. Lett, S.L. Rolston, and W.D. Phillips, *Photoassociation of sodium in a Bose-Einstein condensate*, Physical Review Letters **88**, 120403 (2002).
36. E. Tiesinga, S. Kotochigova, and P.S. Julienne, *Scattering length of the ground state Mg+Mg collision.*, Physical Review A, **65**, 042722 (2002).

37. E. L. Bolda, E. Tiesinga, and P. S. Julienne, *Effective-scattering-length model of ultracold atomic collisions and Feshbach resonances in tight harmonic traps*. Physical Review A **66**, 013403 (2002).
38. T. Bergeman, P. S. Julienne, C. J. Williams, E. Tiesinga, M. Riad Manaa, H. Wang, P. L. Gould, and W. C. Stwalley, *Predissociations in the $K_2 0_u^+$ and 1_g States*, Journal of Chemical Physics **117**, 7491 (2002).
39. F.K. Fatemi, K.M. Jones, P.D. Lett, and E.Tiesinga, *Ultracold ground state molecule production in sodium*, Physical Review A **66**, 053401 (2002).
40. K.M. O'Hara, S.L. Hemmer, S.R. Granade, M.E. Gehm, J.E. Thomas, V.Venturi, E. Tiesinga, C.J. Williams, *Measurement of the Zero Crossing in a Feshbach Resonance of Fermionic ^6Li* , Physical Review A **66**, 041401 (2002).
41. A. Simoni, P. S. Julienne, E. Tiesinga, and C. J. Williams, *Intensity effects in ultracold photoassociation line shapes*, Physical Review A **66**, 63406 (2002).
42. A. Derevianko, S. G. Porsev, S. Kotochigova, E. Tiesinga, and P. S. Julienne *Ultracold Collision Properties of Metastable Alkaline-Earth Atoms*, Physical Review Letters **90**, 063002 (2003).
43. L. E. E. de Araujo, J. D. Weinstein, S. D. Gensemer, F. K. Fatemi, K.M. Jones, P. D. Lett, and E. Tiesinga, *Two-color photoassociation spectroscopy of the lowest triplet potential of Na_2* , Journal of Chemical Physics **119**, 2062 (2003).
44. E. L. Bolda, E. Tiesinga, and P. S. Julienne, *Pseudopotential model of ultracold atomic collisions in quasi-one- and two-dimensional traps* Physical Review A **68**, 032702 (2003).
45. S. Kotochigova, P. S. Julienne, and E. Tiesinga, *Ab initio calculation of the KRb dipole moments*, Physical Review A **68**, 022501 (2003).
46. V. Venturi, P.J. Leo, E. Tiesinga, C.J. Williams, and I.B. Whittingham, *Purely-long range bound states of $\text{He}(2s \ ^3S)+\text{He}(2p \ ^3P)$* , Physical Review A **68**, 022706 (2003).
47. G. Pupillo, E. Tiesinga, and C.J. Williams, *Effects of Inhomogeneity on the spectrum of the Mott-Insulator state*, Physical Review A **68**, 063604 (2003).
48. W. F. Mitchell and E. Tiesinga, *Adaptive Grid Refinement For a Model of Two Confined and Interacting Atoms*, Applied Numerical Mathematics, **52**, 235 (2005).
49. J. Ramirez-Serrane, W. DeGraffenreid, J. Weiner, E. Tiesinga, and P.S. Julienne, *Beam-loss spectroscopy of cold collisions in a bright sodium beam*, Physical Review A **69**, 042708 (2004).
50. K. Góral, T. Köhler, S.A. Gardiner, E. Tiesinga, and P.S. Julienne, *Adiabatic association of ultracold molecules via magnetic field tunable interactions*, Journal of Physics B **37**, 3457 (2004).

51. P.S. Julienne, E. Tiesinga, and T. Köhler, *Making cold molecules by time-dependent feshbach resonances*, Journal of Modern Optics **51**, 1787-1806 (2004).
52. C. Chin, V. Vuletić, A. J. Kerman, S. Chu, E. Tiesinga, P. J. Leo, and C. J. Williams, *Precision Feshbach spectroscopy of ultracold Cs₂*, Physical Review A **70**, 032701 (2004).
53. E.L. Bolda, E. Tiesinga, and P.S. Julienne, *Ultracold dimer association induced by a far-off resonance optical lattice*, Physical Review A **71**, 033404 (2005).
54. S. Kotochigova, E. Tiesinga, and P.S. Julienne, *Photoassociative formation of ultracold polar KRb molecules*, The European Physical Journal D **31**, 189 (2004).
55. P.S. Julienne, E. Tiesinga, and T. Köhler, *Making cold molecules by time-dependent Feshbach resonances*, Journal of Modern Optics **51**, 1787 (2004).
56. M. Mudrich, S. Kraft, J. Lange, A. Mosk, M. Weidemüller, and E. Tiesinga, *Hyperfine-changing collisions in an optically trapped gas of ultracold cesium and lithium*, Physical Review A **70**, 062712 (2004).
57. R. Ciuryło, E. Tiesinga, S. Kotochigova, and P. S. Julienne, *Photoassociation spectroscopy of cold alkaline earth atoms near the intercombination line*, Physical Review A **70**, 062710 (2004).
58. C.H. Schunck, M.W. Zwierlein, C.A. Stan, S.M.F. Raupach, W. Ketterle, A. Simoni, E. Tiesinga, C.J. Williams, and P.S. Julienne *Feshbach Resonances in Fermionic ⁶Li*, Physical Review A **71**, 045601 (2005).
59. T. Köhler, E. Tiesinga, and P. S. Julienne, *Spontaneous dissociation of long-range Feshbach molecules*, Physical Review Letters, **94**, 020402 (2005).
60. M. Bartenstein, A. Altmeyer, S. Reidl, R. Geursen, S. Jochim, C. Chin, J. Hecker Denschlag, R. Grimm, A. Simoni, E. Tiesinga, C.J. Williams, and P.S. Julienne, *Precise determination of ⁶Li cold collision parameters by radio-frequency spectroscopy on weakly bound molecules*, Physical Review Letters **94**, 103201 (2005).
61. R. Ciuryło, E. Tiesinga, and P. S. Julienne, *Optical tuning of the scattering length of cold alkaline earth atoms*, Physical Review A **71**, 030701 (2005).
62. J. Werner, A. Griesmaier, S. Hensler, J. Stuhler, T. Pfau, A. Simoni, and E. Tiesinga, *Observation of Feshbach resonances in an ultracold gas of ⁵²Cr*, Physical Review Letters **94**, 183201 (2005).
63. E. Tiesinga, K. M. Jones, P. D. Lett, U. Volz, C. J. Williams, and P. S. Julienne, *Measurement and modeling of hyperfine- and rotation-induced state mixing in large weakly-bound sodium dimers*, Physical Review A **71**, 052703 (2005).
64. B. Gao, E. Tiesinga, C. J. Williams, and P. S. Julienne, *Multichannel quantum-defect theory for slow atomic collisions*, Physical Review A, **72**, 042719 (2005).

65. S. Shrestha, E. Tiesinga, and C. J. Williams, *Scattering length determination from trapped pairs of atoms*, Physical Review A **72**, 022701 (2005).
66. S. Kotochigova and E. Tiesinga, *Ab Initio Relativistic Calculation of the RbCs Molecule*, Journal of Chemical Physics **123**, 174304 (2005).
67. K. Xu, Y. Liu, J.R. Abo-Shaeer, T. Mukaiyama, J.K. Chin, D.E. Miller, W. Ketterle, K. M. Jones, and E. Tiesinga, *Sodium Bose-Einstein Condensates in an Optical Lattice*, Physical Review A **72**, 043604 (2005).
68. K. M. Jones, E. Tiesinga, P. D. Lett, and P. S. Julienne, *Ultracold Photoassociation Spectroscopy: Long-range molecules and atomic scattering*, Review of Modern Physics **78**, 483-535 (2006).
69. S. Kotochigova and E. Tiesinga, *Controlling Polar Molecules in Optical Lattices.*, Physical Review A **73**, 041405 (2006).
70. R. Ciuryło, E. Tiesinga, and P. S. Julienne, *Stationary phase approximation for the strength of optical Feshbach resonances*, Physical Review A **74**, 022710 (2006).
71. P. Naidon, E. Tiesinga, W. F. Mitchell, and P. S. Julienne *Effective-range description of a Bose gas under strong one- or two-dimensional confinement*, New Journal of Physics **9**, 19 (2007).
72. E. Tiesinga, M. Anderlini, and E. Arimondo, *Determination of the scattering length of the $a^3\Sigma^+$ potential of $^{87}\text{RbCs}$* , Physical Review A **71**, 022707 (2007).
73. E. Gomez, A.T. Black, L.D. Turner, E. Tiesinga, and P.D. Lett, *Light forces in ultracold photoassociation*, Physical Review A **75**, 013420 (2007).
74. K. Szymaniec, W. Chałupczak, E. Tiesinga, C.J. Williams, S. Weyers, and R. Wynands *Cancellation of the collisional frequency shift in caesium fountain clocks*, Physical Review Letters **98**, 153002 (2007).
75. D. DeMille, S. Sainis, J. Sage, T. Bergeman, S. Kotochigova, and E. Tiesinga, *Enhanced sensitivity to variation of m_e/m_p in molecular spectra*. Physical Review Letters **100**, 043202 (2008).
76. E. Wille, F.M. Spiegelhalder, G. Kerner, D. Naik, A. Trenkwalder, G. Hendl, F. Schreck, R. Grimm, T.G. Tiecke, J.T.M. Walraven, S.J.J.M.F. Kokkelmans, E. Tiesinga, P.S. Julienne, *Exploring an ultracold Fermi-Fermi mixture: Interspecies Feshbach resonances and scattering properties of ^6Li and ^{40}K* , Physical Review Letters **100**, 053201 (2008).
77. P. Naidon, E. Tiesinga, and P. S. Julienne, *Two-body transients in coupled atomic-molecular BECs*, Physical Review Letters **100**, 093001 (2008).
78. F.W. Strauch, M. Edwards, E. Tiesinga, C. J. Williams, C. W. Clark, *Tunneling phase gate for neutral atoms in a double-well lattice*, Physical Review A, **77**, 050304 (2008).

79. K. Mitra, F.W. Strauch, C.J. Lobb, J.R. Anderson, F.C. Wellstood, and E. Tiesinga, *Quantum behavior of the dc SQUID phase qubit*, Physical Review B **77**, 214512 (2008).
80. S. K. Dutta, F. W. Strauch, R. M. Lewis, K. Mitra, H. Paik, T. A. Palomaki, E. Tiesinga, J. R. Anderson, A. J. Dragt, C. J. Lobb, and F. C. Wellstood, *Multi-level effects in the Rabi oscillations of a Josephson phase qubit*, Physical Review B **78**, 104510 (2008)
81. J. M. Hutson, E. Tiesinga, and P. S. Julienne, *Avoided crossings between bound states of ultracold Cesium dimers*, Physical Review A, **78**, 052703 (2008).
82. Y. Liu, S. Jung, S. Maxwell, L. D. Turner, E. Tiesinga, and P. D. Lett, *Quantum Phase Transitions and Continuous Observation of Spinor Dynamics in an Antiferromagnetic Condensate*, Physical Review Letters, **102**, 125301 (2009).
83. S. Kotochigova, E. Tiesinga, and P. S. Julienne, *Multi-channel modelling of the formation of vibrationally cold polar KRb molecules*, New Journal of Physics **11**, 055043 (2009).
84. T. M. Hanna, E. Tiesinga, and P. S. Julienne, *Prediction of Feshbach resonances from three input parameters*, Physical Review A **79**, 040701 (2009).
85. M. Iskin and E. Tiesinga, *Rotation induced superfluid-normal phase separation in trapped Fermi gases*, Physical Review A **79**, 053621 (2009).
86. Y. Liu, E. Gomez, S. Maxwell, L. D. Turner, E. Tiesinga, and P. D. Lett, *Number Fluctuations and Energy Dissipation in Sodium Spinor Condensates*, Physical Review Letters **102**, 225301 (2009).
87. A. Hu, L. Mathey, I. Danshita, E. Tiesinga, C. J. Williams, and C. W. Clark, *Counterflow and paired superfluidity in one-dimensional Bose mixtures in optical lattices*, Physical Review A **80**, 023619 (2009).
88. P. R. Johnson, E. Tiesinga, J. V. Porto, and C. J. Williams, *Effective three-body interactions and decoherence of coherent atom states in optical lattices*, New Journal of Physics **11**, 093022 (2009).
89. L. Mathey, E. Tiesinga, P. S. Julienne, and C. W. Clark, *Collisional cooling of ultra-cold atom ensembles using Feshbach resonances*, Physical Review A **80**, 030702 (2009).
90. A. M. Kaufman, R. P. Anderson, T. M. Hanna, E. Tiesinga, P.S. Julienne, and D.S. Hall, *Radiofrequency Dressing of Multiple Feshbach Resonances*, Physical Review A, **80**, 050701(R) (2009).
91. T.A. Palomaki, S.K. Dutta, R. M. Lewis, A.J. Przybysz, Hanhee Paik, B.K. Cooper, H. Kwon, J.R. Anderson, C.J. Lobb, F.C. Wellstood, and E. Tiesinga, *Multi-level Spectroscopy of Two-Level systems coupled to a dc SQUID Phase qubit*, Physical Review B **81**, 144503 (2010).

92. C. Chen, R. Grimm, P. S. Julienne, and E. Tiesinga, *Feshbach resonances in ultracold gases*, Review of Modern Physics **82**, 1225 (2010).
93. T. M. Hanna, E. Tiesinga and P. S. Julienne, *Creation and manipulation of Feshbach resonances with radio-frequency radiation*, New Journal of Physics, **12**, 083031 (2010).
94. F. Baumer, F.M. Münchow, A. G. Görlitz, S.E. Maxwell, P.S. Julienne, and E. Tiesinga, *Spatial separation in a thermal mixture of ultracold ^{174}Yb and ^{87}Rb atoms*, Physical Review A **83**, 040702 (2011).
95. D. Braun and J. Hoffman, and E. Tiesinga, *Superradiance of cold atoms coupled to a superconducting circuit*, Physical Review A **83**, 062305 (2011).
96. S. Knoop, T. Schuster, R. Scelle, A. Trautmann, J. Appmeier, M. K. Oberthaler, E. Tiesinga, and E. Tiemann, *Feshbach spectroscopy and analysis of the interaction potentials of ultracold sodium*, Physical Review A **83**, 042704 (2011).
97. E. Tiesinga and P. R. Johnson, *Collapse and revival dynamics of number-squeezed superfluids of ultracold atoms in optical lattices*, Physical Review A **83**, 063609 (2011).
98. A. Hu, L. Mathey, E. Tiesinga, I. Danshita, C.J. Williams, and C. W. Clark, *Detecting paired and counterflow superfluidity via dipole oscillations*, Physical Review A **84**, 041609 (2011).
99. T. M. Hanna, E. Tiesinga, W.F. Mitchell, and P.S. Julienne, *Resonant control of polar molecules in individual sites of an optical lattice*, Physical Review A **85**, 022703 (2012).
100. P.R. Johnson, D. Blume, X. Y. Yin, W.F. Flynn, and E. Tiesinga, *Effective renormalized multi-body interactions of harmonically confined ultracold neutral bosons*, New Journal of Physics **14**, 053037 (2012).
101. A. Petrov, E. Tiesinga, and S. Kotochigova, *Anisotropy induced Feshbach resonances in a quantum dipolar gas of magnetic atoms*, Physical Review Letters **109**, 103002 (2012).
102. S. Sainis, J. Sage, E. Tiesinga, S. Kotochigova, T. Bergeman, and D. DeMille, *Detailed spectroscopy of the Cs_2 $a^3\Sigma_u^+$ state and implications for measurements sensitive to variation of the electron-proton mass ratio*, Physical Review A **86**, 022513 (2012).
103. A. Petrov, E. Tiesinga, and S. Kotochigova, *Anisotropy-Induced Feshbach Resonances in a Quantum Dipolar Gas of Highly Magnetic Atoms*, Physical Review Letters **109**, 103002 (2012).
104. E. Tiesinga and P.R. Johnson, *Quadrature interferometry for nonequilibrium ultracold atoms in optical lattices*, Physical Review A **87**, 013423 (2013).
105. I. I. Satija, C. L. Pando L., and E. Tiesinga, *Soliton dynamics of an atomic spinor condensate on a ring lattice*, Physical Review A **87**, 033608 (2013).

106. R. Mathew and E. Tiesinga, *Controlling the group velocity of colliding atomic Bose-Einstein condensates with Feshbach resonances*, Physical Review A **87**, 053608 (2013).
107. H. K. Pechkis, J. P. Wrubel, A. Schwettmann, P. F. Griffin, R. Barnett, E. Tiesinga, and P. D. Lett, *Spinor Dynamics in an Antiferromagnetic Spin-1 Thermal Bose Gas*, Physical Review Letters **111**, 025301 (2013).
108. K. W. Mahmud and E. Tiesinga, *Dynamics of spin-1 bosons in an optical lattice: Spin mixing, quantum-phase-revival spectroscopy, and effective three-body interactions*, Physical Review A **88**, 023602 (2013).
109. S. Paul and E. Tiesinga, *Formation and decay of Bose-Einstein condensates in an excited band of a double-well optical lattice*, Physical Review A **88**, 033615 (2013).
110. Chin-Chun Tsai, T. Bergeman, E. Tiesinga, P. S. Julienne, and D. J. Heinzen, *Hyperfine and vibrational structure of weakly bound levels of the lowest 1_g state of molecular $^{87}\text{Rb}_2$* , Physical Review A **88**, 052509 (2013).
111. K. W. Mahmud, L. Jiang, E. Tiesinga, and P. R. Johnson, *Bloch oscillations and quench dynamics of interacting bosons in an optical lattice*, Physical Review A **89**, 023606 (2014).
112. K. W. Mahmud, L. Jiang, P. R. Johnson, and E. Tiesinga, *Collapse and revivals for systems of short-range phase coherence*, New Journal Of Physics **16**, 103009 (2014).
113. K. W. Mahmud, E. Tiesinga, and P. R. Johnson, *Dynamically decoupled three-body interactions with applications to interaction-based quantum metrology*, Physical Review A **90**, 041602(R) (2014).
114. X. Y. Yin, D. Blume, P. R. Johnson, and E. Tiesinga, *Universal and non-universal effective N -body interactions for ultracold harmonically-trapped few-atom systems*, Physical Review A **90**, 043631 (2014).
115. L. Jiang, E. Tiesinga, X.-J. Liu, H. Hu, and H. Pu, *Spin-orbit-coupled topological Fulde-Ferrell states of fermions in a harmonic trap*, Physical Review A **90**, 053606 (2014).
116. M. Nuske, E. Tiesinga, and L. Mathey, *Optimization of collisional Feshbach cooling of an ultracold nondegenerate gas*, Physical Review A **91**, 043626 (2015).
117. S. Paul and E. Tiesinga, *Large effective three-body interaction in a double-well optical lattice* Physical Review A **92**, 023602 (2015).
118. R. Mathew, A. Kumar, S. Eckel, F. Jendrzejewski, G.K. Campbell, E. Tiesinga and M. Edwards, *Self-heterodyne detection of the in-situ phase of an atomic-SQUID*, Physical Review A **92**, 033602 (2015).
119. T. Maier, H. Kadau, M. Schmitt, M. Wenzel, I. Ferrier-Barbut, T. Pfau, A. Frisch, S. Baier, K. Aikawa, L. Chomaz, M. J. Mark, F. Ferlaino, C. Makrides, E. Tiesinga, A. Petrov, and S. Kotochigova, *Emergence of Chaotic Scattering in Ultracold Er and Dy*, Physical Review X **5**, 041029 (2015).

120. J. Rühling, T. Bäurle, P.S. Julienne, E. Tiesinga, and T. Pfau, *Photoassociation of spin-polarized chromium*, Physical Review A **93**, 021406(R) (2016).
121. R. Thomas, K. O. Roberts, E. Tiesinga, A. C. J. Wade, P. B. Blakie, A. B. Deb and N. Kjærgaard, *Multiple scattering dynamics of fermions at an isolated p-wave resonance*, Nature Communications **7**, 12069 (2016).
122. S. Paul, P. R. Johnson, and E. Tiesinga, *Hubbard model for ultracold bosonic atoms interacting via zero-point-energy induced three-body interactions*, Physical Review A **93**, 043616 (2016).
123. M. Nuske, L. Mathey, and E. Tiesinga, *Sudden-quench dynamics of Bardeen-Cooper-Schrieffer states in deep optical lattices*, Physical Review A **94**, 023607 (2016).
124. S. Paul and E. Tiesinga, *Wannier functions using a discrete variable representation for optical lattices*, Physical Review A **94**, 033606 (2016).
125. J. S. Krauser, J. Heinze, S. Götze, M. Langbecker, N. Fläschner, L. Cook, T. M. Hanna, E. Tiesinga, K. Sengstock, and C. Becker, *Investigation of Feshbach resonances in ultracold ^{40}K spin mixtures*, Physical Review A **95**, 042701 (2017).
126. M. Li, A. Petrov, C. Makrides, E. Tiesinga, and S. Kotochigova, *Pendular trapping conditions for ultracold polar molecules enforced by external electric fields*, Physical Review A **95**, 063422 (2017).
127. M. S. J. Horvath, R. Thomas, E. Tiesinga, A. B. Deb, and N. Kjærgaard, *Above-threshold scattering about a Feshbach resonance for ultracold atoms in an optical collider*, Nature Communications **8**, 452 (2017).
128. R. Mathew and E. Tiesinga, *Phase-space mixing in dynamically unstable, integrable few-mode quantum systems*, Physical Review A **96**, 013604 (2017).
129. B. J. Sawyer, M. S. J. Horvath, E. Tiesinga, A. B. Deb, and N. Kjærgaard, *Dispersive optical detection of magnetic Feshbach resonances in ultracold gases*, Physical Review A **96**, 022705 (2017).
130. J. Scherschligt, J. A. Fedchak, D. S. Barker, S. Eckel, N. Klimov, C. Makrides, and E. Tiesinga, *Development of a new UHV/XHV pressure standard (Cold Atom Vacuum Standard)*, Metrologia **54**, S125 (2017).
131. D. Newell, P. J. Mohr, B. N. Taylor, and E. Tiesinga, *Data and Analysis for the CODATA 2017 Special Fundamental Constants Adjustment for the Revision of the SI*, Metrologia **55**, 125 (2018).
132. C. Makrides, M. Li, E. Tiesinga, and S. Kotochigova, *Fractal universality in near-threshold magnetic lanthanide dimers*, Science Advances **4**, eaap8308 (2018).
133. M. Li, E. Tiesinga, S. Kotochigova, *Orbital quantum magnetism in spin dynamics of strongly interacting magnetic lanthanide atoms*, Physical Review A, **97**, 053627 (2018).

134. J. P. Wrubel, A. Schwettmann, D. P. Fahey, Z. Glassman, H. K. Pechkis, P. F. Griffin, R. Barnett, E. Tiesinga, and P. D. Lett, *Spinor Bose-Einstein condensate phase-sensitive amplifier for $SU(1,1)$ interferometry*, Physical Review A **98**, 023620 (2018).
135. S. Eckel, D. S. Barker, J. A. Fedchak, N. N. Klimov, E. Norrgard, J. Scherschligt, C. Makrides, and E. Tiesinga, *Challenges to miniaturizing cold atom technology for deployable vacuum metrology*, Metrologia **55**, S182 (2018).
136. R. Thomas, M. Chilcott, E. Tiesinga, A. B. Deb, and N. Kjærgaard, *Observation of bound state self-interaction in a nano-eV atom collider*, Nature Communications, **9**, 4895 (2018).
137. C. Makrides, D. S. Barker, J. A. Fedchak, J. Scherschligt, S. Eckel, and E. Tiesinga, *Elastic rate coefficients for $\text{Li}+\text{H}_2$ collisions in the calibration of a cold-atom vacuum standard*, Physical Review A **99**, 042704 (2019).
138. R. Mathew and E. Tiesinga, *A semiclassical theory of phase-space dynamics of interacting bosons*, Journal of Physics B, **52**, 185302 (2019).
139. E. Tiesinga, P. J. Mohr, D. B. Newell, and B. N. Taylor (2019), *The 2018 CODATA Recommended Values of the Fundamental Physical Constants* (Web Version 8.0) <https://physics.nist.gov/cuu/Constants/index.html>, May 20, 2019.
140. D. Newell and E. Tiesinga, NIST Special Publication 330. *The International System of Units (SI)*, August (2019).
141. C. Makrides, D. S. Barker, J. A. Fedchak, J. Scherschligt, S. Eckel, and E. Tiesinga, *Collisions of room temperature helium with ultra-cold lithium and the van-der-Waals bound state of HeLi* , Physical Review A **101**, 012702 (2020)
142. E. Tiesinga, K. A. Dill, and D. B. Newell, *SI Base Units Relationship Poster*, March 2020.
143. A. Green, H. Li, J. H. S. Toh, X. Tang, K. C. McCormick, M. Li, E. Tiesinga, S. Kotochigova, S. Gupta, *Feshbach Resonances in p -Wave Three-Body Recombination within Fermi-Fermi Mixtures of Open-Shell and Closed-Shell Atoms*, Physical Review X **10**, 031037 (2020).
144. G. W. F. Drake and E. Tiesinga, *Simplify your life*, Nature Physics **16**, 1242 (2020)
145. J. Kłos, Q. Guan, H. Li, M. Li, E. Tiesinga, and S. Kotochigova, *Roaming pathways and survival probability in real-time collisional dynamics of cold and controlled bialkali molecules*, Scientific Reports **11**, 1 (2021).
146. E. Tiesinga, P. J. Mohr, D. B. Newell, and B. N. Taylor, *CODATA recommended values of the fundamental physical constants: 2018*, Review of Modern Physics **93**, 025010 (2021).

147. E. Tiesinga, J. Klos, M. Li, A. Petrov, and S. Kotochigova, *Relativistic aspects of orbital and magnetic anisotropies in the chemical bonding and structure of lanthanide molecules*, New Journal of Physics **23**, 085007 (2021).
148. J. Klos, H. Li, E. Tiesinga, and S. Kotochigova, *Prospects for assembling ultracold radioactive molecules from laser-cooled atoms*, New Journal Physics **24**, 025005 (2022).
149. E. Tiesinga and P. Mohr, *The importance of being fundamental*, Nature Physics **18**, 474 (2022).
150. C. Makrides, D. S. Barker, J. A. Fedchak, J. Scherschligt, S. Eckel, and E. Tiesinga, *Erratum: Elastic rate coefficients for collisions in the calibration of a cold-atom vacuum standard [Phys. Rev. A 99, 042704 (2019)]* Physical Review A **105**, 039903 (2022).
151. C. Makrides, D. S. Barker, J. A. Fedchak, J. Scherschligt, S. Eckel, and E. Tiesinga, *Erratum: Collisions of room-temperature helium with ultracold lithium and the van der Waals bound state of HeLi [Phys. Rev. A 101, 012702 (2020)]* Physical Review A **105**, 029902 (2022).
152. L. H. Ehinger, B. P. Acharya, D. S. Barker, J. A. Fedchak, J. Scherschligt, E. Tiesinga, and S. Eckel, *Comparison of two multiplexed portable cold-atom vacuum standards*, AVS Quantum Science **4**, 034403 (2022).