

REFERENCES

- [1] D. DiVincenzo, “The physical implementation of quantum computation,” *Fortschritte der Physik: Progress of Physics*, vol. 48, 2000, p. 771.
- [2] D. Deutsch, “Quantum theory, the church-turing principle and the universal quantum computer,” *Proc R Soc. London*, vol. A400, 1985, p. 97.
- [3] *Advanced Research and Development Activity (ARDA)*. Quantum Information Science and Technology Roadmap, 2004.
- [4] D. Wineland and H. Dehmelt, “Proposed $10^4 \delta\nu/\nu$ laser fluorescence spectroscopy on Ti^+ mono-ion oscillator,” *Bull. Am. Phys. Soc.*, vol. 20, 1975, p. 637.
- [5] T. Hansch and A. Schawlow, “Cooling of gases by laser radiation,” *Opt. Commun.*, vol. 13, 1975, p. 68.
- [6] D. Wineland and W. Itano, “Laser cooling of atoms,” *Phys. Rev. A*, vol. 20, 1979, p. 1521.
- [7] S. E. Hamann, D. L. Haycock, G. Klose, P. H. Pax, I. H. Deutsch, and P. S. Jessen, “Resolved-sideband raman cooling to the ground state of an optical lattice,” *Phys. Rev. Lett.*, vol. 80, 1997, p. 4149.
- [8] W. Demtrober, *Laser Spectroscopy: Basic Concepts and Instrumentation*. Springer, 3rd ed., 2003, p. 150, ISBN: 3-540-65225-6.
- [9] I. Bloch, “Ultracold quantum gases in optical lattices,” *Nature Physics*, vol. 1, 2005, p. 23.
- [10] W. Neuhauser, M. Hohenstatt, P. E. Toschek, and H. Dehmelt, “Localized visible b^+ mono-ion oscillator,” *Phys Rev. A*, vol. 22, 1980, p. 1137.
- [11] N. Schlosser, G. Reymond, and P. Grangier, “Collisional blockade in microscopic optical dipole traps,” *Phys. Rev. Lett.*, vol. 89, 2002, p. 023005-1.

- [12] N. Schlosser, G. Reymond, I. Protsenko, and P. Grangier, "Sub-possionian loading of single atoms in a microscopic dipole trap," *Nature*, vol. 411, 2001, p. 1024.
- [13] W. S. Bakr, J. I. Gillen, A. Peng, S. Folling, and M. Greiner, "A quantum gas microscope for detecting single atoms in a hubbard-regime optical lattice," *Nature*, vol. 462, 2009, p. 74.
- [14] T. Grunzweig, A. Hilliard, M. McGovern, and M. F. Andersen, "Near-deterministic preparation of a single atom in an optical microtrap," *Nature Phys.*, vol. 6, 2010, p. 951.
- [15] A. V. Carpentier, Y. H. Fung, P. Sompet, A. J. Hilliard, T. G. Walker, and M. F. Andersen, "Preparation of a single atom in an optical microtrap," *Laser Phys. Lett.*, vol. 10, 2013, p. 125501.
- [16] V. Bendkowsky, B. Butscher, J. Nipper, J. P. Shaffer, R. Low, and T. Pfau, "Observation of ultralong-range rydberg molecules," *Nature*, vol. 453, 2009, p. 1005.
- [17] P. Sompet, A. V. Carpentier, Y. H. Fung, M. McGovern, and M. F. Andersen, "Dynamics of two atoms undergoing light-assisted collisions in an optical microtrap," *Phys. Rev. A*, vol. 88, 2013, p. 051401.
- [18] A. B. Jones and J. M. Smith, "Observation of rydberg blockade between two atoms," *Phys. Rev. Lett.*, vol. 113, 2013, p. 145.
- [19] H. J. Metcalf and P. van der Straten, *Laser Cooling and Trapping*. Springer, 1999, ISBN: 0-387-98728-2.
- [20] J. Dalibard and C. Cohen-Tannoudji, "Dressed-atom approach to atomic motion in laser light: the dipole force revisited," *J. Opt. Soc. Am. B*, vol. 2, 1985, p. 1707.
- [21] M. J. Seaton, "Quantum defect theory," *Rep. Prog. Phys.*, vol. 46, 1983, p. 176.

- [22] D. B. Branden, T. Juhasz, T. Mahlokozera, C. Vesa, R. O. Wilson, M. Zheng, A. Kortyna, and D. A. Tate, “Radiative lifetime measurements of rubidium rydberg states,” *J. Phys. B:At. Mol. Opt. Phys.*, vol. 43, 2010, p. 015002.
- [23] J. H. Hoogenraad and L. D. Noordam, “Rydberg atoms in far-infrared radiation fields. i. dipole matrix elements of h, li, and rb,” *Phys. Rev. A*, vol. 57, 1998, p. 4533.
- [24] P. Bohlouli-Zanjani, J. A. Petrus, and J. D. D. Martin, “Enhancement of rydberg atom interactions using ac stark shifts,” *Phys. Rev. Lett.*, vol. 98, 2007, p. 203005.
- [25] A. A. Khuskivadze, M. I. Chibisov, and I. I. Fabrikant, “Adiabatic energy levels and electric dipole moments of rydberg states of Rb_2 and Cs_2 dimers,” *Phys. Rev. A*, vol. 66, 2002, p. 042709.
- [26] V. A. Davydkin, B. A. Zon, N. L. Manakov, and L. P. Rapoport, “Quadratic stark effect on atoms,” *Sov. Phys. JETP*, vol. 33, 1971, p. 70.
- [27] L. Hostler, “Coulomb greens functions and the furry approximation,” *Journal of Mathematical Physics*, vol. 5, 1963, p. 591.
- [28] C. H. Greene, “Photoabsorption spectra of the heavy alkali-metal negative ions,” *Phys. Rev. A*, vol. 42, 1990, p. 1405.
- [29] C. Bahrim and U. Thumm, “Low-lying $^3\text{P}^\circ$ and $^3\text{S}^\circ$ states of Rb^- , Cs^- , and Fr^- ,” *Phys. Rev. A*, vol. 61, 2000, p. 022722.
- [30] M. Marinescu, H. R. Sadeghpour, and A. Dalgarno, “Dispersion coefficients for alkali-metal dimers,” *Phys. Rev. A*, vol. 49, 1994, p. 982.
- [31] I. I. Fabrikant, “Theory of negative ion decay in an external electric field,” *J. Phys. B:At. Mol. Opt. Phys.*, vol. 26, 1993, p. 2533.
- [32] J. J. Sakurai, *Modern Quantum Mechanics*. Addison-Wesley Publishing Company, revised edition ed., 1994, p. 380, ISBN: 0-201-53929-2.
- [33] M. I. Chibisov, A. A. Khuskivadze, and I. I. Fabrikant, “Energies and dipole

moments of long-range molecular rydberg states,” *J. Phys. B:At. Mol. Opt. Phys.*, vol. 35, 2002, p. L193.

- [34] C. Bahrim¹, I. I. Fabrikant, and U. Thumm, “Boundary conditions for the pauli equation: Application to photodetachment of Cs^- ,” *Phys. Rev. Lett.*, vol. 87, 2001, p. 123003.
- [35] C. Bahrim¹, U. Thumm, and I. I. Fabrikant, “ $^3S^e$ and $^1S^e$ scattering lengths for $e^- + \text{Rb}$, Cs and Fr collisions,” *J. Phys. B:At. Mol. Phys.*, vol. 34, 2001, p. L195.
- [36] I. I. Fabrikant, “Interaction of rydberg atoms and thermal electrons with K, Rb and Cs atoms,” *J. Phys. B:At. Mol. Phys.*, vol. 19, 1986, p. 1527.
- [37] S. J. Buckman, “Atomic negative-ion resonances,” *Rev. Mod. Phys.*, vol. 66, 1994, p. 539.
- [38] R. K. Nesbet, *Variational Methods in Electron-Atom Scattering Theory*. Springer, 1980, p. 86, ISBN: 978-1-4684-8431-1.
- [39] A. Gatan, Y. Miroshnychenko, T. Wilk, A. Chotia, M. Viteau, D. Comparat, P. Pillet, A. Browaeys, and P. Grangier, “Observation of collective excitation of two individual atoms in the rydberg blockade regime,” *Nature Phys.*, vol. 5, 2009, p. 115.
- [40] D. S. Weiss, E. Riis, Y. Shevy, P. J. Ungar, and S. Chu, “Optical molasses and multilevel atoms: experiment,” *J. Opt. Soc. Am. B*, vol. 6, 1989, p. 2072.

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LIST OF PUBLICATIONS

- 1) R. Kaewuam, N. Chattrapiban, and W. Anukool, “Four Level Dynamic in Rubidium-85 Magneto-Optical Trap,” Proceedings, Siam Physics Congress, Krabi, Thailand, May 20 - May 22, 2015, pp. ATO5-ATO7.



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