CURRICULUM VITAE

Dajun Wang

PERSONAL DATA

Full Name: Dajun Wang
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EDUCATION

2001-2007 PhD, Department of Physics, University of Connecticut (advisor: Prof. William C. Stwalley)
1998-2001 M.S., Department of Physics, Peking University (advisor: Prof. Bei Zhang)
1994-1998 B.S., Department of Material Physics, University of Science and Technology Beijing

PROFESSIONAL EXPERIENCE

2020-now Professor, Department of Physics, The Chinese University of Hong Kong
2016-2020 Associate professor, Department of Physics, The Chinese University of Hong Kong
2010-2016 Assistant professor, Department of Physics, The Chinese University of Hong Kong
2007-2010 Research Associate, JILA/University of Colorado (supervisor: Prof. Jun Ye)

PROFESSIONAL SOCIETIES

Member, American Physical Society, since 2005
Member, Optical Society of America, since 2005
Member, Physical Society of Hong Kong, since 2011

MAIN RESEARCH INTERESTS

- Cold and ultracold polar molecules
- Ultracold atomic quantum gases and their mixtures
- Ultracold spinor gas
- High resolution spectroscopy

AWARDS AND HONORS

Department Teaching Award, Department of Physics, CUHK, 2015
Student Travel Grant, Optical Society of America, Division of Laser Sciences, 2007

LIST OF RESEARCH OUTPUTS OR CREATIVE WORKS

Preprint:

1. Dezhi Xiong, Fudong Wang, Xiaoke Li, Ting-Fai Lam and Dajun Wang, "Production of a rubidium Bose-Einstein condensate in a hybrid trap with light induced atom desorption", *arXiv:1303.0333.*

Refereed Publications

1. Lintao Li, Bing Zhu, Shizhong Zhang and Dajun Wang, "Manipulation of heteronuclear spin dynamics with microwave and vector light shift", Physical Review A 101,053611(2020)
2. Fudong Wang, Xin Ye, Mingyang Guo, D. Blume and Dajun Wang, "Observation of resonant scattering between ultracold heteronuclear Feshbach molecules", Physical Review

A 100,042706(2019)
3. Dajun Wang, “A versatile cold-molecule collider”, Nature 572,180(2019)
4. Bo Lu and Dajun Wang, “Ultracold dipolar molecules 超冷極性分子 （invited review paper）”, Acta Physica Sinica 物理學報 68,043301(2019)
5. Mingyang Guo, Xin Ye, Junyu He, Maykel L. González-Martínez, Romain Vexiau, Goulven Quéméner, Dajun Wang, “Dipolar Collisions of Ultracold Ground-state Bosonic Molecules”, Physical Review X 8,041044(2018)
6. Mingyang Guo, Xin Ye, Junyu He, Goulven Quéméner and Dajun Wang, “High-resolution Internal State Control of Ultracold 23Na87Rb Molecules”, Physical Review A 97,020501(R)(2018)
7. Xin Ye, Mingyang Guo, Maykel L. Gonzalez-Martınez, Goulven Quéméner, Dajun Wang, “Collisions of ultracold 23Na87Rb molecules with controlled chemical reactivities”, Science Advances, Science Advances 4, eaaq0083(2018).
8. Mingyang Guo, Romain Vexiau, Bing Zhu, Bo Lu, Nadia Bouloufa-Maafa, Olivier Dulieu, Dajun Wang, “ High-resolution molecular spectroscopy for producing ultracold absolute-ground-state 23Na87Rb molecules”, Physical Review A 96, 052505(2017).
9. Bo Lu, Dajun Wang, “ Note: A four-pass acousto-optic modulator system for laser cooling of sodium atoms”,Rev. Sci. Instrum. 88, 076105 (2017).
10. Zhengguo Pu, Jun Zhang, Su Yi, Dajun Wang, Wenxian Zhang, “Magnetic field induced dynamical instabilities in an anti-ferromagnetic spin-1 Bose-Einstein condensate”, arxiv:1605.02864, *Physical Review A 93, 053628(2016)*
11. Mingyang Guo, Bing Zhu, Bo Lu, Xin Ye, Fudong Wang, Romain Vexiau, Nadia Bouloufa-Maafa, Goulven Quéméner, Olivier Dulieu and Dajun Wang, “Creation of an ultracold gas of ground-state $^{23}Na^{87}Rb$ molecules”, *Phys. Rev. Lett.* 116, 205303 (2016), editor’s suggestion
12. Bing Zhu, Xiaoke Li, Xiaodong He, Mingyang Guo, Fudong Wang, Romain Vexiau, Nadia Bouloufa-Maafa, Olivier Dulieu, and Dajun Wang, “ Long-range states of the NaRb molecule near the $Na(3^2S_{1/2})+Rb(5^2P_{3/2})$ asymptote”, *Phys. Rev. A* 93,012508(2016)
13. Fudong Wang, Xiaoke Li, Dezhi Xiong and Dajun Wang, “A double species ^{23}Na and ^{87}Rb Bose–Einstein condensate with tunable miscibility via an interspecies Feshbach resonance”, *J. Phys. B* 49,015302(2015)
14. Xiaoke Li, Bing Zhu, Xiaodong He, Fudong Wang, Mingyang Guo, Zhifang Xu, Shizhong Zhang and Dajun Wang, “Coherent heteronuclear spin dynamics in an ultracold spinor mixture”, *Phys. Rev. Lett.*, 114, 255301 (2015)
15. Xiaodong He, Bing Zhu, Xiaoke Li, Fudong Wang, Zhifang Xu and Dajun Wang, “Coherent spin mixing dynamics in thermal ^{87}Rb spin-1 and spin-2 gases”, *Phys. Rev. A* 91, 033635 (2015)
16. Fudong Wang, Xiaodong He, Xiaoke Li, Bing Zhu, Jun Chen and Dajun Wang, “Formation of NaRb Feshbach molecules”, New J. Phys. 17, 035003(2015)
17. Fudong Wang, Dezhi Xiong, Xiaoke Li, Dajun Wang, E. Tiemann, “Observation of Feshbach resonances between ultracold Na and Rb atoms”, *Phys. Rev A (R)* 87,050702 (2013)
18. Jin-Tae Kim, Yonghoon Lee, Bongsoo Kim, Dajun Wang, Phillip Gould, Edward Eyler, and William Stwalley, “Spectroscopic investigation of the A and 3 $^1\Sigma^+$ states of $^{39}K^{85}Rb$”, *J. Chem. Phys.* 137, 244301 (2012)
19. Z. F. Xu, D. J. Wang and L. You, “Quantum spin mixing in a binary mixture of spin-1 atomic condensates”, *Phys. Rev. A* 86, 013632 (2012)
20. J.T. Kim, Y. Lee, B. Kim, D. Wang, W.C. Stwalley, P.L. Gould and E.E. Eyler, “Spectroscopic Prescription for Optimal Stimulated Raman Transfer in Ultracold Heteronuclear Molecules to the Lowest Rovibronic Level*,” Phys. Rev. A* 84, 062511(2011)
21. Jin-Tae Kim, Yonghoon Lee, Bongsoo Kim, Dajun Wang, William C. Stwalley, Phillip L. Gould and Edward E. Eyler, “Spectroscopic analysis of the coupled $1^1\Pi$, $2^3\Sigma+$ ($\Omega = 0_{-,1}$), and $b^3\Pi$ ($\Omega = 0_{\pm,1,2}$) states of the KRb molecule using both ultracold molecules and molecular beam experiments”, *Physical Chemistry Chemical Physics* 13, 18755-18761(2011)

22. M. H. G. de Miranda, A. Chotia, B. Neyenhuis, D. Wang, G. Quemener, S. Ospelkaus, J. L. Bohn, J. Ye, and D. S. Jin, "Controlling the quantum stereodynamics of ultracold bimolecular reactions", *Nature physics*, 7, 502 (2011)
23. D. Wang, B. Neyenhuis, M.H.G. deMiranda, K-K Ni, S. Ospelkaus, D. S. Jin and J. Ye, "Direct absorption imaging of ultracold polar molecules", *Phys. Rev. A*, 81, 061404(R) (2010)
24. K-K Ni , S. Ospelkaus, D. Wang, G. Quemener, B. Neyenhuis, M.H.G. deMiranda, J.L. Bohn, J. Ye and D. S. Jin "Dipolar collisions of polar molecules in the quantum regime", *Nature*, 464,1324 (2010)
25. S. Ospelkaus, K-K Ni, D. Wang, M.H.G. deMiranda, B. Neyenhuis, G. Quemener, P. S. Julienne, J.L. Bohn, D. S. Jin and J. Ye, "Quantum-State Controlled Chemical Reactions of Ultracold KRb Molecules", *Science*, 327, 853 (2010)
26. S. Ospelkaus, K-K Ni, G. Quemener, B. Neyenhuis, D. Wang, M.H.G. deMiranda, J.L. Bohn, J. Ye and D.S. Jin, "Controlling the hyperfine state of rovibronic ground-state polar molecules" *Phys. Rev. Lett.*, 104, 030402 (2010)
27. S. Ospelkaus, K.-K. Ni, M. H. G. de Miranda, B. Neyenhuis, D. Wang, S. Kotochigova, P. S. Julienne, D. S. Jin and J. Ye, "Ultracold polar molecules near quantum degeneracy", *Faraday Discuss.*, 142, 351 – 359 (2009)
28. J. T. Kim, D. Wang, E. E. Eyler, P. L. Gould and W. C. Stwalley, "Spectroscopy of $^{39}K^{85}Rb$ triplet excited states using ultracold $a\ ^3\Sigma^+$ state molecules formed by photoassociation", *New Journal of Physics*, 11,055020 (2009)
29. B. K. Stuhl, B. C. Sawyer, D. Wang and Jun Ye, "Magneto-Optical Traps for Polar Molecules", *Phys. Rev. Lett.* 101, 243002 (2008)
30. B. C. Sawyer, B. K. Stuhl, D. Wang, M. Yeo and Jun Ye, "Molecular beam collisions with a magnetically trapped target", Phys. Rev. Lett. 101, 203203 (2008)
31. H. K. Pechkis, D. Wang, Y. Huang, E. E. Eyler, P. L. Gould, W. C. Stwalley and C. P. Koch, "Resonant coupling between the 0_u^+ states in Rb_2", *Phys. Rev. A* 76, 022504 (2007)
32. D. Wang, C. Ashbaugh, J. T. Kim, E.E. Eyler, P.L. Gould, and W.C. Stwalley, "Rotationally-Resolved depletion spectroscopy of ultracold KRb molecules", *Phys. Rev. A* 75, 032511 (2007)
33. Y. Huang, J. Qi, H.K. Pechkis, D. Wang, E. E. Eyler, P. L. Gould, and W. C. Stwalley, "Formation, detection, and spectroscopy of ultracold Rb_2 in the ground $X\ ^1\Sigma_g^+$", *J. Phys. B* 39, 857 (2006)
34. T. Bergeman, J. Qi, D. Wang, Y. Huang, H. K. Pechkis, E.E. Eyler, P.L. Gould, W.C. Stwalley, R. A. Cline, J. D. Miller and D. J. Heinzen, "Photoassociation of ^{85}Rb atoms into 0_u^+ states near the 5S + 5P atomic limits", *J. Phys. B* 39, 813 (2006)
35. D. Wang, E.E. Eyler, P.L. Gould, and W.C. Stwalley, "Spectra of ultracold KRb molecules in near-dissociation vibrational levels", *J. Phys. B* 39, 849 (2006)
36. J. Lozeille, A. Fioretti, C. Gabbanini, Y. Huang, H.K. Pechkis, D. Wang, P.L. Gould, E.E. Eyler, W.C. Stwalley, M. Aymar and O. Dulieu, "Detection by two-photon ionization and magnetic trapping of cold Rb_2 triplet state molecules", *Eur. Phys. J. D* 39, 261 (2006)
37. D. Wang, E.E. Eyler, P.L. Gould, and W.C. Stwalley, "State-Selective Detection of Ultracold KRb $X^1\Sigma^+$ and $a^3\Sigma^+$ Molecules", *Phys. Rev. A* 72, 032502 (2005)
38. D. Wang, J. Qi, M. F. Stone, O. Nikolayeva, B. Hattaway, S. D. Gensemer, H. Wang, W. T. Zemke, P. L. Gould, E. E. Eyler and W. C. Stwalley, "The Photoassociative Spectroscopy, Photoassociative Molecule Formation, and Trapping of Ultracold $^{39}K^{85}Rb$", *Eur. Phys. J. D* 31, 165 (2004)
39. D. Wang, J. Qi, M. F. Stone, O. Nikolayeva, H. Wang, B. Hattaway, S. D. Gensemer, P. L. Gould, E. E. Eyler and W. C. Stwalley, "Photoassociative Production and Trapping of Ultracold KRb Molecules", *Phys. Rev. Lett.* 93, 243005 (2004)

INVITED PRESENTATIONS/ LECTURES

Invited Presentations/ Lectures at Conferences, Workshops, Research Institutes and Universities

1. "Ultracold atoms and molecules with dipole-dipole interactions", invited lectures, Nov 20-22, 2018, School of Physics and Astronomy, Sun Yat-Sen University, Zhuhai, China

2. “Collisions of ultracold molecules”, invited talk, June 10, 2018, the 8th International Symposium on Cold Atom Physics, Wuhan, China
3. “Quantum science with ultracold molecules”, April 20, 2018, The University of Science and Technology Beijing
4. “Nobel prize in physics 2018—laser once more”, Nov. 30, 2018, The Chinese University of Hong Kong
5. “Collisions of ultracold molecules”, invited talk, June 26, 2018, Long-range interactions in the ultracold workshop, Hannover, Germany
6. “Collisions of ultracold molecules”, invited talk, May 29, 2018, 49th Annual APS DAMOP Meeting, Ft. Lauderdale, FL, USA
7. “Chemical reactivity controlled collisions between ultracold NaRb molecules”, invited talk, Jan. 20, 2018, Workshop on Quantum Materials and Quantum Technology, the Chinese University of Hong Kong, Hong Kong
8. “Collisions of ultracold molecules”, invited talk, June 13, 2018, Croucher Summer Course "Ultracold Atom Physics”, the Chinese University of Hong Kong, Hong Kong
9. “Collisions of ultracold NaRb molecules”, invited talk, June 14, 2018, 255th ACS National meeting, New Orleans, LA, USA
10. “Collisions of ultracold NaRb molecules”, invited talk, Dec. 11, 2017, Croucher Conference on Cold Atoms, University of Hong Kong
11. “Collisions of ultracold NaRb molecules”, invited talk, August 4, 2017, 第十一届全國冷原子物理和量子信息青年學者學術討論會, Shanghai
12. “A dipolar gas of ground-state NaRb molecules”, seminar, March 29, 2017, Renmin University, Beijing
13. “Chemical reactivity controlled collisions between ultracold NaRb molecules”, seminar, March 27, 2017, IAS, Tsinghua University, Beijing
14. “Chemical reactivity controlled collisions between ultracold NaRb molecules”, seminar, March 26, 2017, IOP, CAS, Beijing
15. “Chemical reactivity controlled collisions between ultracold NaRb molecules”, seminar, March 8, 2017, CQT, National University of Singapore
16. “Few-body physics with ultracold heteronuclear molecules”, invited talk, Jan. 20, 2017, the NSFC-RGC Mainland China and Hong Kong Young Scholars Forum, Wuhan University
17. “Collisions of ultracold polar molecules with controlled chemical reactivity”, seminar, Dec. 13, 2016, CUA, Harvard/MIT, Boston, MA
18. “Few-body physics with ultracold heteronuclear molecules”, invited talk, Nov. 18, 2016, 第十五届低温物理会议，韶关
19. “Quests to ultracold ground-state polar molecules”, invited talk, August 16, 2016, Workshop on Atomic and Molecular Spectroscopy in Honor of Dr. William C. Stwalley on the Occasion of his Retirement after Serving the Community for 48 Years, Department of Physics, University of Connecticut
20. “A strongly dipolar gas of ultracold ground-state $^{23}Na^{87}Rb$ molecules”, seminar, August 9, 2016, Department of Physics, Stony Brook University
21. “A strongly dipolar gas of ultracold ground-state $^{23}Na^{87}Rb$ molecules”, invited talk, July 21, 2016, the 2nd Conference on Condensed Matter Physics, Nanjing
22. “Creation of a strongly dipolar gas of ultracold ground-state $^{23}Na^{87}Rb$ molecules”, seminar, March 10, 2016, Laboratoire Aimé Cotton , Orsay, France
23. “Ultracold Bose-Bose mixture of Na and Rb atoms”, invited talk, December 4, 2015, 2015 年量子模擬學術報告會，South China Normal University, Guangzhou
24. “Experiments with an ultracold Na and Rb mixture-polar molecules and spinor mixture”, invited talk, August 5, 2015, 第九屆全國冷原子物理青年學者學術討論會，長春
25. “Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture”, seminar, July 7, 2015, WIPM, CAS Wuhan
26. “Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture”, invited talk, April 23, 2015, Quantum materials and quantum technologies, Department of Physics, CUHK
27. “Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture”, Seminar, June 4, 2015, Department of Physics, University of Connecticut, USA

28. “Atoms and molecules with dipole-dipole interactions”, lecture, January 15, 2015, Department of Physics, 第五期理論物理前沿講習班-冷原子物理前沿, Sun Yat-Sen University, Guangzhou
29. “Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture”, Colloquium, December 2, 2014, Department of Physics, Fudan University, Shanghai
30. “Experiments with ultracold atoms: BEC and more”, invited lecture, July 10, 2014, 2014 AMO Summer School, Department of Physics, Tsinghua University, Beijing
31. “Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture”, invited talk, August 27, 2014, Quantum gas 2014, IAS, Tsinghua University, Beijing
32. “Atoms and molecules with dipole-dipole interactions”, invited talk, Summer school and mini workshop on cold atom, June 26, 2014, IAS, HKUST, Hong Kong
33. “Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture”, invited talk, June 12, 2014, Precision Tests of Many-Body Physics with Ultracold Quantum Gases, KITPC, Beijing
34. “Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture”, invited talk, May 13, 2014, HongKong Taiwan Cold Atom Forum, NCTS, Taiwan
35. “Experiments with an ultracold Na and Rb mixture”, invited talk, NSFC-ISF: Joint Workshop on Bose Einstein Condensation and Ultracold Phenomena, September 27, 2013
36. “Experiments with an ultracold Na and Rb mixture”, invited talk, August 13, 2013, The 12th International Conference on Condensed Matter Theory and Computational Materials Science，Sun Yat-Sen University, Guangzhou
37. “Experiments with an ultracold Na and Rb mixture”, invited talk, July 30, 2013, 第七屆全國冷原子物理和量子信息青年學者學術討論會，安徽黃山
38. “Ultracold molecules I and II”, invited lectures, 清華大學2013年冷原子物理與實驗基礎暑期學校, July 10, 2013, Department of Physics, Tsinghua University, Beijing
39. “Experiments with an ultracold Na and Rb mixture”, Seminar, May 17, 2013, WIPM, CAS, Wuhan, China
40. “Molecules near absolute zero”, Colloquium, November 8, 2012, Department of Physics, the Hong Kong University
41. “Current cold atom researches in Hong Kong”, May 15, 2012, International Conference on Frontiers of Cold Atoms and Related Topics, CUHK
42. “Ultracold polar molecules”, invited talk, CUHK-HUST symposium, June 16, 2012, CUHK
43. “Molecules near absolute zero”, invited talk, CUHK-PKU physics undergraduate students symposium, May 26, 2012, PKU-CUHK
44. “Ultracold polar molecules”, invited talk, December 9, 2011, Croucher ASI: Dynamical Control of Quantum Coherence for Current and Future Information Technologies, CUHK
45. “Ultracold polar molecules”, invited talk, August 5, 2011, 第五屆全國冷原子物理和量子信息青年學者學術討論會, 蘭州大學
46. “Making, detecting and manipulating ultracold polar molecules”, invited talk, December 11, 2010, International Symposium on Quantum Dynamics of Ultracold Atoms and Quantum Technologies, Sun Yat-sen University, Guangzhou, China
47. “Dimensionality effects in dipolar collisions”, invited talk, the 3rd Guangdong-Hong physics conference, December 5, 2010, South China University of technology, Guangzhou, China
48. “Ultracold chemistry and dipolar collisions between ultracold polar molecules”, seminar, October 18, 2010, Shanxi University, Taiyuan, Shanxi, China
49. “Ultracold chemistry and dipolar collisions between ultracold polar molecules”, seminar, October 11, 2010, Department of physics, Hong Kong University of Science and Technology, Hong Kong, China
50. “Ultracold chemistry and dipolar collisions between ultracold polar molecules”, seminar, July 6, 2010, Department of physics, University of Connecticut, Storrs, CT USA
51. “Ultracold chemistry and dipolar collisions between ultracold polar molecules”, invited talk, Conference on complexity and disorder at ultra-low temperatures by LANL, June 22, 2010, Santa Fe, New Mexico, USA
52. “Ultracold chemistry and dipolar collisions between ultracold polar molecules”, seminar, March 30, 2010, NIST, Time and frequency division, Boulder, CO, USA

53. “Ultracold chemistry and dipolar collisions between ultracold polar molecules”, seminar, March 18, 2010, Physics department, East China Normal University, Shanghai
54. “Ultracold chemistry and dipolar collisions between ultracold polar molecules”, seminar, March 8, 2010, Physics department, Tsinghua University, Beijing
55. “Dipolar collisions between ultracold polar molecules”, seminar, March 1, 2010, Physics department, Chinese University of Hong Kong
56. “The quest for ground state ultracold polar molecules”, colloquium, Feb. 26, 2010, Physics department, Chinese University of Hong Kong
57. “Experiments with ultracold KRb and Rb2 molecules”, seminar, May 2007, SUNY, Stony Brook
58. “Experiments with ultracold KRb molecules produced via photoassociation”, seminar, May 2007, JILA / University of Colorado
59. “Experiments with ultracold KRb molecules produced via photoassociation”, seminar, April 2007, Argonne National Lab
60. “Experiments with ultracold KRb molecules produced via photoassociation”, seminar, March 2007, MIT

CONFERENCE ORGANIZATION

1. Local Organizing Committee member, International Conference on Frontiers of Cold Atoms and Related Topics, CUHK, 14/05-17/05/2012
2. Co-organizer, Mini-workshop on Cold Atom Research in Hong Kong, CUHK, 26/10/2012
3. Co-organizer, Croucher Summer Course “Ultracold Atom Physics”, CUHK, May 9-13, 2016
4. Co-organizer, Croucher Summer Course “Ultracold Atom Physics”, CUHK, June 11-15, 2018

PROFESSIONAL SOCIETY ACTIVITIES

CUHK campus coordinator, Hong Kong Physics Society, 08/2013- now

STUDENTS AND POST-DOCTORAL SCHOLARS

Post-doctoral scholars: Jie Ma, Dezhi Xiong, Xiaodong He, Bo Lu, Shi Yu, Lele Chen
PhD students: Xiaoke Li, Fudong Wang, Bing Zhu, Mingyang Guo, Xin Ye, Lintao Li, Junyu He, Zhichao Guo, Fan Jia, Junyu Lin
Graduated MPhil students: Jun Chen
Undergraduate students: Hoi Ming Lam, Fai Kin Wan, Pak Tik Fong, Zitan Guo, James Pak Hong Leung, Peter Ka Kam Lam, Hao Cui, Junjie Jiang, Kenneth Tsz Chun Tsui, Xingchi Yan, Felix Yau Lun Chong, Vera Hiu Sze Wu, Paul Chong Wa Lai