

## KANG-KUEN NI

12 Oxford Street, Cambridge, MA 02138

617-496-3199  $\diamond$  ni@chemistry.harvard.edu

Departments of Chemistry and Chemical Biology  $\diamond$  Harvard University

### EXPERIENCE

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#### Harvard University

Assistant Professor

Department of Chemistry and Chemical Biology

Harvard-MIT Center for Ultracold Atoms

Cambridge, MA

July 2013 - Present

#### JILA

National Research Council Postdoctoral Fellow

Advisor: Prof. Eric Cornell

Boulder, CO

December 2011 - June 2013

#### California Institute of Technology

Center for Physics of Information Postdoctoral Fellow

Advisor: Prof. Jeff Kimble

Pasadena, CA

November 2009 - September 2011

### EDUCATION

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#### University of Colorado, Boulder

Ph.D., Physics

Thesis advisor: Prof. Deborah Jin

JILA, the National Institute of Standards and Technology and the University of Colorado, Boulder

*A quantum gas of polar molecules*

August 2003 - December 2009

#### University of California, Santa Barbara

B.S. with Highest Honors

Senior thesis advisor: Prof. Andrew Cleland

*Fabricating magnetic tunnel junctions for biosensing*

September 2000 - June 2003

### AWARDS AND HONORS

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- National Research Council Postdoctoral Fellowship, NIST, 2011 - 2013
- American Physical Society DAMOP Thesis Prize, 2010
- Center for Physics of Information Postdoctoral Fellowship, Caltech, 2009 - 2011
- National Science Foundation Graduate Fellowship, 2004 - 2007
- University of California Leadership Excellence through Advanced Degrees scholar, 2001 - 2003

### PUBLICATIONS

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- [1] **K.-K. Ni**, R. Norte, D. J. Wilson, J. D. Hood, D. E. Chang, O. Painter, and H. J. Kimble. Enhancement of Mechanical Q Factors by Optical Trapping. *Physical Review Letters*, 108(21):214302, May 2012.
- [2] D. E. Chang, **K.-K. Ni**, O. Painter, and H. J. Kimble. Ultrahigh-Q mechanical oscillators through optical trapping. *New Journal of Physics*, 14(4):045002, April 2012.

- [3] Y. Zhao, D. J. Wilson, **K.-K. Ni**, and H. J. Kimble. Suppression of extraneous thermal noise in cavity optomechanics. *Optics Express*, 20:3586, February 2012.
- [4] D. Wang, B. Neyenhuis, M. H. G. de Miranda, **K.-K. Ni**, S. Ospelkaus, D. S. Jin, and J. Ye. Direct absorption imaging of ultracold polar molecules. *Physical Review A*, 81(6):061404, June 2010.
- [5] **K.-K. Ni**, S. Ospelkaus, D. Wang, G. Quéméner, B. Neyenhuis, M. H. G. de Miranda, J. L. Bohn, J. Ye, and D. S. Jin. Dipolar collisions of polar molecules in the quantum regime. *Nature*, 464:1324–1328, April 2010.
- [6] S. Ospelkaus, **K.-K. Ni**, D. Wang, M. H. G. de Miranda, B. Neyenhuis, G. Quéméner, P. S. Julienne, J. L. Bohn, D. S. Jin, and J. Ye. Quantum-State Controlled Chemical Reactions of Ultracold Potassium-Rubidium Molecules. *Science*, 327:853, February 2010.
- [7] 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. Controlling the Hyperfine State of Rovibronic Ground-State Polar Molecules. *Physical Review Letters*, 104(3):030402, January 2010.
- [8] 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 Discussions*, 142:351, 2009.
- [9] **K.-K. Ni**, S. Ospelkaus, D. J. Nesbitt, J. Ye, and D. S. Jin. A dipolar gas of ultracold molecules. *Physical Chemistry Chemical Physics (Incorporating Faraday Transactions)*, 11:9626, 2009.
- [10] **K.-K. Ni**, S. Ospelkaus, M. H. G. de Miranda, A. Pe’er, B. Neyenhuis, J. J. Zirbel, S. Kotochigova, P. S. Julienne, D. S. Jin, and J. Ye. A High Phase-Space-Density Gas of Polar Molecules. *Science*, 322:231, October 2008.
- [11] S. Ospelkaus, A. Pe’er, **K. -K. Ni**, J. J. Zirbel, B. Neyenhuis, S. Kotochigova, P. S. Julienne, J. Ye, and D. S. Jin. Efficient state transfer in an ultracold dense gas of heteronuclear molecules. *Nat. Phys.*, 4(8):622–626, 2008.
- [12] J. J. Zirbel, **K.-K. Ni**, S. Ospelkaus, T. L. Nicholson, M. L. Olsen, P. S. Julienne, C. E. Wieman, J. Ye, and D. S. Jin. Heteronuclear molecules in an optical dipole trap. *Physical Review A*, 78(1):013416, July 2008.
- [13] J. J. Zirbel, **K.-K. Ni**, S. Ospelkaus, J. P. D’Incao, C. E. Wieman, J. Ye, and D. S. Jin. Collisional Stability of Fermionic Feshbach Molecules. *Physical Review Letters*, 100(14):143201, April 2008.
- [14] D.K. Wood, **K.K. Ni**, D.R. Schmidt, and A.N. Cleland. Submicron giant magnetoresistive sensors for biological applications. *Sensors and Actuators A: Physical*, 120(1):1 – 6, 2005.

As of October 12, 2013

## INVITED TALKS

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Cornell University, “New prospect for cold molecular physics,” Ithaca, NY, April 4th, 2013

Duke University, “New prospect for cold molecular physics,” March 6th, 2013

Columbia University, “New prospect for cold molecular physics,” New York, NY, March 5th, 2013

Hong Kong University of Science and Technology, “New prospect for cold molecular physics,” Hong Kong, February 28th.

University of Illinois at Urbana-Champaign, “New prospect for cold molecular physics”, February 18, 2013

Harvard University, “New prospect for cold molecular chemistry and physics,” Cambridge, MA, February 13, 2013

Joint Quantum Institute, “New prospect for cold molecular physics,” College Park, MA, February 11, 2013

Cornell University, “New prospect for cold molecular physics,” Ithaca, NY, February 5, 2013

Institute of Atomic and Molecular Sciences, “New prospect for cold molecular physics,” Taipei, Taiwan, January 23, 2013

National Tsing Hua University, “New prospect for cold molecular physics,” Hsinchu, Taiwan, January 21, 2013

Pennsylvania State University, “New prospect for cold molecular physics,” State College, PA, January 15, 2013

Princeton University, “New prospect for cold molecular physics,” Princeton, NJ, December 13, 2012

Institute for Advanced Study, Tsinghua University, Beijing, “Looking for electron out-of-roundness below  $10^{-28}$  centimeters”, September 6, 2012

UC Berkeley AMO Seminar, “Optical Trapping of Dielectric Membranes,” Berkeley, CA, April 13, 2011

DAMOP 2010, Thesis Prize Finalist presentation, Houston, TX, May 26, 2010

Quantum Optics Conference 2010, “Ultracold Collisions of Polar Molecules,” Obergurgl, Austria, Feb., 2010

Center for Ultracold Atoms Seminar 2009, “Ultracold Collisions of Polar Molecules,” Cambridge, MA, Nov. 17, 2009

DAMOP 2009, “Ultracold Molecules” session, Charlottesville, VA, May 22, 2009

Workshop on “Ultracold atoms and molecules”, Hsinchu, Taiwan, March 28 and 29, 2009

Extreme Photonics, “Ultrafast meets Ultracold” conference, Gamagori, Japan, Nov. 12, 2008