

Colorado Cold Molecule Workshop (COCOMO)



July 15-17, 2009
JILA, University of Colorado
Boulder, Colorado

Workshop Organizers
John Bohn
Deborah Jin
Heather Lewandowski
Jun Ye

Workshop Coordinator
Pam Leland

Wednesday, July 15

Session Chair - John Bohn

- 9:00 - 9:25: John Doyle - Harvard University
Cold and Ultracold Molecules and Atoms and Buffer-Gas Cooling
- 9:35 -10:00: Heather Lewandowski - JILA
Cold Atom-Molecule Interactions
- 10:10-10:25 Brian Sawyer - JILA
Cold Collisions with Magnetically-Trapped Polar Molecules
- 10:30-11:00 Break - patio out North door of JILA
- 11:00-11:25 Gerard Meijer - Max-Planck-Gesellschaft
Taming Molecular Beams: Towards a Molecular Laboratory on a Chip
- 11:35-12:00 Jeremy Hutson - University of Durham
Prospects for Sympathetic Cooling of Polar Molecules
- 12:10- 2:00 Lunch

Session Chair - Simon Cornish

- 2:00- 2:25 Roman Krems - University of British Columbia
Cold Controlled Chemistry
- 2:35- 3:00 Gerhard Rempe - Max-Planck-Institut für Quantenoptik
Buffer-Gas Cooled Polar Molecules in Electric Fields
- 3:10- 3:25 Rosario Gonzáles-Férez - Universidad de Granada
Impact of Electric Fields on Highly Excited Rovibrational States of Polar Dimers
- 3:30- 4:00 Break - patio out North door of JILA
- 4:00- 4:25 David DeMille - Yale University
Towards Direct Laser Cooling of a Diatomic Molecule
- 4:35- 5:00 Jonathan Weinstein - University of Nevada
Inelastic Collisions in Non-Sigma-State Molecules

Thursday, July 16

Session Chair - Peter Zoller

- 9:00 - 9:25 Silke Ospelkaus - JILA
Ultracold Polar Molecules
- 9:35 -10:00 Paul Julienne - NIST Gaithersburg
The Quantum Defect Viewpoint of Atomic and Molecular Collisions
- 10:10-10:25 Svetlana Kotochigova - Temple University
Isotropic and Anisotropic Short-Range Interactions of Ultracold Polar Molecules
- 10:30-11:00 Break - patio out North door of JILA
- 11:00-11:25 Hanns-Christoph Nägerl - University of Innsbruck
A Quantum Gas of Rovibronic Ground State Molecules in an Optical Lattice
- 11:35-12:00 Cheng Chin - University of Chicago
Scalable Quantum Information Processing Based on Ultracold Atoms and Molecules in a Mott Insulating Phase
- 12:10- 2:00 Lunch
- 2:00- 5:00 Poster Session - 10th floor JILA
Poster program available at poster session.
- 5:30-8:00 Picnic at JILA grove, NE side of JILA Tower.
Beer, wine and nonalcoholic beverages provided

Friday, July 17

Session Chair - Ed Eyler

- 9:00 - 9:25 Lincoln Carr - Colorado School of Mines
Emergent Time Scales in Entangled Quantum Dynamics of Ultracold Molecules in Optical Lattices
- 9:35 -10:00 Tilman Pfau - Universität Stuttgart
Long Range Interacting Ultracold Rydberg Atoms and Molecules
- 10:10-10:25 Goulven Quemener - JILA
Electric and Magnetic Manipulation of Ultracold Polar $^{40}\text{K}^{87}\text{Rb}$ Collisions
- 10:30-11:00 Break - patio out North door of JILA
- 11:00-11:15 Andrea Micheli - University of Innsbruck
Blue Shielding of Polar Molecules in Confined Geometries
- 11:20-11:35 Guido Pupillo - University of Innsbruck
Quantum Phases of Polar Molecules in 2D Optical Lattices
- 11:40-12:05 Aaron Leanhardt - University of Michigan
An Electron EDM Search with Tungsten Carbide Molecules
- 12:15- 2:00 Lunch

Session Chair - Masatoshi Kajita

- 2:00- 2:25 Eric Cornell - JILA
Can We Measure Electron Out-of-Roundness to 10^{-15} Femtometers?
- 2:35- 3:00 Mark Raizen - University of Texas
The Atomic and Molecular Coilgun, and Single-Photon Cooling: A Two-Step Solution
- 3:10- 3:25 Stephen Hogan - Swiss Federal Institute of Technology
Rydberg-Stark Deceleration and Electrostatic Trapping of Molecular Hydrogen
- 3:30 - 4:00 All-JILA Friday afternoon treats on patio under tower