

Invited Speakers for Past **Symposia on Chemical Physics** at the University of Waterloo.

<i>Name</i>	<i>Affiliation</i>	<i>Title of Presentation</i>
<b>2015</b>		
R.J.D. Miller	Max Planck	Mapping Atomic Motions with Ultrabright Electrons: The Chemists' Gedanken Experiment Enters the Lab Frame
R. Jockush	U. Toronto	Combined Mass Spectrometry and Fluorescence Studies to Separate Intrinsic Behavior from Environmental Effects: from Fundamental Investigations of Fluorescent Probes to FRET for Gas-phase Protein Conformation
V. Molinero	U. Utah	Crystallization of water: a molecular perspective
G. Douberly	U. Georgia	Laser Spectroscopy of Reactive Intermediates in Superfluid Helium Droplets
A. Izmaylov	U. Toronto	Role of Topology in Chemical Dynamics Beyond Born-Oppenheimer Approximation
E. Johnson	Dalhousie U.	Properties of molecular crystals from density-functional theory
<b>2014</b>		
D. Ceperley	U. Illinois	Dense hydrogen: What we can calculate, Implications for density functionals, and Multi-scale approaches
D. Cory	U. Waterloo	Quantum Sensors and Computers
G. Lamoreux	Concordia U.	Molecular modeling of proton cotransport in proteins
A. Mullen	U. Maryland	Dynamics of Molecular Gyroscopes
A. Krylov	U.S.C.	A Fresh Look at Resonances: An Equation-of-Motion Coupled-Cluster Based Approach
L.-S. Wang	Brown. U.	Electrospray Photoelectron Spectroscopy: From Multiply Charged Anions to Ultracold Anions
<b>2013</b>		
M. Ashfold	U. Bristol	Molecular Photofragmentation Dynamics in the Gas and Liquid Phase: Parallels and Differences
N. Blinov	U. Alberta	Bridging the gap between Explicit and Implicit Solvation: Perspective of the Molecular Theory of Solvation
M. Ernzerhof	U. Montral	Kekul formulae, Hckel theory, and Dirac's Equation: Combining Various Concepts to better Understand Electron Transport in Conjugated systems
T. Fridgen	Memorial U.	Experimental and Computational Studies of Gas Phase Structures and Energetics of Non-Covalent Complexes of DNA Bases
K. Madison	U.B.C.	Production and Study of Ultra-Cold Molecules from Laser-Cooled Atoms: A New Regime for Ultracold Chemistry and Physics
W. Poirier	Texas Tech. U.	Ten Thousand Quantum States of Acetonitrile
<b>2012</b>		
D. Manolopoulos	U. Oxford	Ring Polymer Molecular Dynamics – A Review of 6 Years Work Including a Wide Variety of Applications
M. Dantus	Michigan State U.	Coherent Control Principles and Applications Based on Shaped Ultrafast Pulses
G. Hanna	U. Alberta	Multidimensional vibrational spectroscopy of mixed quantum-classical systems: From simple models to water
N. Moazzen-Ahmadi	U. Calgary	Weakly-Bound Molecular Complexes Formed from Three- and Four-Atom Linear molecules
P. Peterson	Cornell U.	Ultrafast Dynamics at Soft Interfaces
V. Staroverov	U. Western Ontario	Recent advances in the theory and application of model Kohn-Sham potentials

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<b>2011</b>		
R. McKellar	NRC, Canada	Spectroscopy of Molecular Clusters
J. Autschbach	SUNY Buffalo	Spectroscopy 'In Silico'
J. Klassen	U. Alberta	Structure and Stability of Protein-Ligand Complexes in the Gas Phase
V. Mandelshtam	U. California Irvine	Simulation of Quantum Liquids and Clusters by Thermal Gaussian Molecular Dynamics
A. Stolow	NRC Canada	CARS Microscopy Made Simple
J. Van Wijngaarden	U. Manitoba	High Resolution Spectroscopy from the Microwave Through the Infrared Region
<b>2010</b>		
T. Ziegler	U. Calgary	The Description of Excited States by Density Functional Theory
N. Mosey	Queen's U.	First-Principles Simulations of Tribological Processes
Y. Shi	U. Calgary	Catalytic Chemical Vapour Deposition Chemistry in the gas Phase and on Catalytic Surfaces
A. Suits	Wayne State U.	Roaming Radicals! Results from High-Resolution Imaging Studies
A. Vilesov	U. Southern California	Growing Clusters in He Droplets: From Nano- to Micro-Droplets
K. Walker	U. Toronto	Using Spectroscopy to Study Atmospheric Composition
<b>2009</b>		
M. Lester	U. Pennsylvania	Dynamical Outcomes of Quenching: Reflections on a Conical Intersection
J. Hutson	U. Durham	Ultracold Molecules and Ultracold Collisions
W. Jäger	U. Alberta	Doped Superfluid Clusters
R. Krems	U. British Columbia	Ultracold Chemistry
K. Lehman	U. Virginia	Cavity Ring-Down Spectroscopy
R.J. Le Roy	U. Waterloo	Adventures in 'Potentiology'
G. Scoles	Princeton U. & Internat. School Advanced Studies (Trieste)	Nanomedicine: Towards New Definitions, Diagnostics and Cure of Illness in Modern Medicine
<b>2008</b>		
J. Bowman	Emory U.	Reaction and Vibrational Dynamics on Full Dimensional <i>ab initio</i> -based Potential Energy Surfaces
P. Bernath	U. York	Molecular Astronomy
G. Chan	Cornell U.	Strongly Interacting Electrons in Chemistry
T. Leung	U. Waterloo	Spintronics: Emerging Nanotechnology or Just Applied Chemical Physics?
R. Signorell	U. British Columbia	Vibrational Excitons in Aerosol Spectroscopy
D. Tokaryk	U. New Brunswick	Rings and Things at the Ring: FTIR Spectroscopy of Moderately Large Molecules at the Canadian Light Source
<b>2007</b>		
F. Merkt	ETH Zurich	Rydberg Stark Deceleration and Zeeman Deceleration of Atoms and Molecules
P. Ayers	McMaster U.	Chemical Reaction Mechanism Prediction and Elucidation with the Fast-Marching Method
A. Brown	U. Alberta	Laser Control of Polyatomic Molecules: The Optimal Control Theory Multi-Configuration Time-Dependent Hartree Approach
E. Grant	U. British Columbia	Spectroscopic Manifestations of High-Rydberg Dynamics (Intra- and Intermolecular)
J. Martin	U. Waterloo	Resonant Electric Dipole-Dipole Interactions Between Ultra-Cold Rydberg Atoms
A. Wodtke	U. California Santa Barbara	Do We Have a Theory for Reactions at Metal Interfaces? The Unsolved Problem of Electronic Non-Adiabaticity

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<b>2006</b>		
R. Bartlett	University of Florida	Coupled-Cluster Theory for Large Molecules: The Natural Linear Scaled Coupled-Cluster Method
A. Dickinson	U. of Newcastle	Transport Properties of Gases: Beyond Linear Molecules
T. Momose	U. British Columbia	Spectroscopy and Dynamics in Solid Parahydrogen and in He Droplets
A. Ross	Université Lyon I	Cavity-Enhanced Laser-Induced Emission Spectroscopy
G. Scoles	Princeton U. & University of Trieste	HENDI Spectroscopy: the Genesis of an Idea and Some Recent Results
Y. Xu	U. Alberta	Exploring Chirality and Chiral Recognition Using Spectroscopic and Ab Initio Methods
<b>2005</b>		
S. Leone	California Berkeley	Ultrafast Molecular Dynamics: Rydberg Wave Packets, Coherent Control, and High Harmonic Probing
T. Baer	U. of North Carolina	PEPICO Studies of Energy Selected Sequential and Parallel Ionic Dissociation Reactions
J. Stanton	U. Texas at Austin	The Unusually Complicated NO <sub>3</sub> Molecule
R. Laflamme	U. of Waterloo	Quantum Computer and NMR
P. Vaccaro	Yale University	Lifting the Veil of Solvation: The Chiral-Optical Response of isolated Molecules
P.-N. Roy	U. of Alberta	Molecular Dynamics in Doped Quantum Clusters: Rotation and Superfluid Response
<b>2004</b>		
W.H. Miller	California Berkeley	Some Recent Applications of the Semiclassical Initial Value Representation
J.A. Coxon	Dalhousie U.	Some Modern Applications of Numerical Methods in the Interpretation of Rotational Structure in Band Spectra of Diatomic Molecules
J. Donaldson	U. of Toronto	Atmospheric Reactions at the Air-Water Interface
H.-P. Loock	Queen's University	Fibre-Optic Detectors and Sensors
T. Steimle	Arizona State U.	Optical Stark and Zeeman Studies of Metal Containing Molecules
B. Winnewisser	Ohio State U.	NCNCS: An Ideal Example of Molecular 'Quantum Monodromy'
<b>2003</b>		
M. Shapiro	U. British Columbia	Quantum Control of Chiral Conversion, Spontaneous Decay and Tunneling
W. Balfour	U. Victoria	The Challenging Playground of Transition Metal Diatomic Spectroscopy
M.Gerry	U. British Columbia	Microwave Spectroscopy of Noble Gas-Coinage Metal Halide Complexes and the Nature of the Noble Gas-Coinage Metal Bond
W.J. Meath	U. Western Ontario	Mechanism for Multiphoton Excitation of Molecules, and On the Enhancement of "Direct" Two- and Three-Photon Excitations
K. Szalewicz	U. Delaware	Theoretical Spectroscopy of Van der Waals Molecules
T. Zwier	Purdue University	Laser Probes of the Potential Energy Landscapes and Conformational Isomerization Dynamics of Flexible Biopolymers

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<b>2002</b>		
J. Maier	U. Basel	Electronic Spectroscopy of Carbon Chains and Their Relevance to Astrophysics
N. Bigelow	U. Rochester	Photoassociation of Molecules in Laser-Cooled Atomic Gases: Precision Spectroscopy, Photoionization, Molecule Formation
F. De Lucia	Ohio State U.	Spectroscopy, Collisions and Energy in the Submillimeter
C. Linton	U. New Brunswick	Laser Spectroscopy of Lanthanide Molecules - Past, Present and Future
J. Lisy	U. Illinois at Urbana-Champaign	Competition Between Non-Covalent Interactions: Surprising Size-Selectivity
G. Patey	U. British Columbia	Forces Between Immersed Objects: A Discussion of Interactions on Different Length Scales
<b>2001</b>		
W.C. Stwalley	U. Connecticut	Making Molecules at MicroKelvin
J. Abbatt	U. Toronto	Interactions of Atmospheric Trace Gases with Ice: Adsorption and Reaction Studies
T. McElroy	Meteorological Service of Canada	The MAESTRO Instrument that will fly on SciSat I, the Atmospheric Chemistry Experiment (ACE)
G.H. Peslherbe	Concordia U.	Photochemistry in Diverse Environments
H. Rabitz	Princeton U.	Teaching Lasers to Control Molecules: The Molecule Knows Best
R. Steer	U. Saskatchewan	Explorations of the Photophysics of Higher Electronic Valence States of Large Molecules: From Spectroscopic Curiosity to Photonics Applications
<b>2000</b>		
G. Scoles	Princeton U.	He Atom Reflectivity Studies of Chemical Dynamics on Metal Surfaces
U. Buck	M.-P.-I. Strömungsforschung	Photodissociation and Caging in Different Cluster Environments
M. Klein	U. Pennsylvania	Computer Simulation Studies of Biophysical Systems: From Micelles to Model Membranes and Membrane Proteins
L. Mattera	U. Genova	Correlation Between Growth and Magnetic Behaviour at the Surface of Ultrathin Films
R.E. Miller	U. North Carolina	Exploring Potential Energy Landscapes: Cluster Growth in He Nanodroplets
P. Rowntree	U. Sherbrooke	Electron-Induced Processes In (and ON) Self-Assembled Organic Monolayers
<b>1999</b>		
P. Corkum	S.I.M.S., NRC	Strong Fields Molecular Optics
K. Chance	Harvard U.	Fitting Atmospheric Spectra in the Infrared Through Ultraviolet: Exercises in Spectroscopy and Radiative Transfer
J. Farrar	U. Rochester	Electronic Spectroscopy of Mass-Selected Clusters: Probes of Ion Solvation
W. Jäger	U. Alberta	Spectra of van der Waals Complexes: Fingerprints of Intermolecular Interactions
D. Pratt	U. Pittsburgh	Static and Dynamic Properties of Molecular Assemblies in the Gas Phase
J. Tennyson	U. London	Assigning the Spectrum of Water on the Sun and Elsewhere

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<b>1998</b>		
J. Jortner	U. Tev Aviv	On Dynamics. From Isolated Molecules to Biomolecules
A. Adam	U. New Brunswick	High Resolution Laser Spectroscopy of Diatomic Molecules Containing Cobalt
F. Davis	Cornell U.	Transition Metal Chemistry in a Crossed Molecular Beam
M. Johnson	Yale U.	Making and Breaking Water Networks Around Halide Ions: Ions vs. Interwater Hydrogen Bonding
R.J.D. Miller	U. Toronto	Femtosecond Surface reaction Dynamics: Mapping the "Electron Trajectory"
N. Westwood	U. Guelph	Ground, Excited and Ionic States of Unstable Molecules: Experiment and Theory
<b>1997</b>		
T. Oka	U. Chicago	Detection of Interstellar $H_3^+$ Molecules in Astronomy
Y. Endo	U. Tokyo	Laser-Induced Fluorescence Spectroscopy of Carbon Chain Free Radicals
M. Okumura	Cal. Tech.	Solvation and State-Mixing in Clusters
R. Saykally	U.C. Berkeley	Infrared Cavity Ring-Down Laser Absorption Spectroscopy
T. Sears	Brookhaven	Transient Frequency Modulation Spectroscopy of Simple Carbenes
J.K.G. Watson	S.I.M.S., NRC	The Diffuse Interstellar Band Problem
<b>1996</b>		
A.D. Buckingham	Cambridge U.	Molecules in Optical, Electric and Magnetic Fields
M. Alexander	U. Maryland	Weakly Bound Complexes of Atomic Boron with Argon and Hydrogen
R. Curl	Rice U.	Infrared Laser Spectroscopy, and Comments on the Discovery of $C_{60}$
M.A. Duncan	U. Georgia	Electrostatic Bonding in Gas Phase Metal Atom Complexes
A. Stolow	S.I.M.S., NRC	Time Resolved Photoelectron/Photoion Spectroscopy: Towards Wavepacket Technology
D. Wardlaw	Queen's U.	Molecular Surface Hopping in Intense Laser Fields
<b>1995</b>		
W. Klemperer	Harvard U.	Spectroscopy, Structure and Dynamics of Molecular Complexes
T. Carrington	U. Montréal	A Time Dependent Multi-Surface Calculation of the Orientation of Photofragments: The Photodissociation of ICN
T.A. Miller	Ohio State U.	Laser Spectroscopy of Cold Methoxy Radicals and Its Derivatives: Molecules that Sometimes Fluoresce and Sometimes Don't
M. Moskovits	U. Toronto	Thinking Small – Megascience with Nanostructures
B. Simard	S.I.M.S., NRC	Experimental and Theoretical Studies of Cu-group 13 and Al-group 14 Diatomics
W. Weisshaar	U. Wisconsin	Understanding Methyl Rotor Barriers
<b>1994</b>		
G. Scoles	Princeton U.	Clusters Within Clusters: Matrix Isolation Spectroscopy in Condensed Helium Beams
M.S. Child	Oxford U.	Inversion of Spectroscopic Data
T.E. Gough	U. Victoria	Infrared Spectroscopy of Molecular Microcrystallites
J.M. Hutson	U. Durham	Additive and Non-Additive Intermolecular Forces from the Spectroscopy of Van der Waals Complexes
A.R.W. McKellar	H.I.A., NRC	Long-Path Infrared Spectra of Weakly-Bound Complexes
R.E. Miller	U. North Carolina	Photofragmentation of Oriented Molecules: New Insights into Photodissociation Dynamics from Pendular States

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<b>1993</b>		
A. Zewail	Cal. Tech.	Recent Advances in Femtochemistry
P. Hackett	NRC	Studies of the Structure and Reactivity of Small Clusters
R. Kapral	U. Toronto	The Structure and Dynamics of Binary Clusters
E.C. Lim	U. Akron	Excited-State Dynamics and Photochemistry of Van der Waals Dimers and Clusters of Aromatic Molecules
A. Myers	U. Rochester	Dissecting the Ensemble Average: Spectroscopy and Dynamics of Individual Molecules
P. Schultz	U. Western Ontario	Probing Defects in Semiconductors with Slow Positrons
<b>1992</b>		
W.C. Lineberger	U. Colorado	Time-Resolved Cage Recombination Dynamics in Large Molecular Cluster Ions
P.R. Bunker	H.I.A., NRC	The Infrared Spectrum, Torsional Barrier and Vibrational Motions in Dimethylacetylene
J.B. McConkey	U. Windsor	Use of Laser-Induced Fluorescence Techniques to Probe the Breakup of Simple Molecules Under Electron Impact
D. Perry	U. Akron	Infrared Molecular Eigenstate Spectroscopy: A Probe for the Rate and Mechanism of Intramolecular Relaxation
L. Sanche	U. de Sherbrooke	Surface Reactions and Desorption Induced by Electron Attachment
A.J. Thakkar	U. New Brunswick	Van der Waals Coefficients, Polarizabilities and Hyperpolarizabilities: Current Computational Possibilities
<b>1991</b>		
R.Z. Zare	Stanford U.	State-Selected and State-Detected Reaction Dynamics
T. Amano	H.I.A., NRC	The Dissociative Recombination Rate of $H_3^+$
P. Houston	Cornell U.	The HCO Potential Energy Surface: Probes Using Molecular Scattering and Photodissociation
W.J. Meath	U. Western Ontario	Effects of Permanent Dipoles on the Resonance Profiles and Dynamics Associated with Single- and Multi-Photon Laser-Molecule Interactions
T. Rizzo	U. Rochester	Multiple Laser Probes of Intramolecular Dynamics
D. Roy	Université Laval	The Surface Chemistry of Silicon Investigated by Electron Spectroscopy: Some New Results
<b>1990</b>		
D.G. Truhlar	U. Minnesota	Calculation of Quantum Effects in Chemical Reaction Dynamics
D.J. Donaldson	U. Toronto	Predissociation Dynamics of $CS_2$
K.C. Janda	U. Pittsburgh	Pump-Probe Studies of the Structure and Dynamics of Van der Waals Molecules
J. Barker	U. Michigan	Collisional Deactivation of Highly Excited Polyatomic Molecules
B. Henry	U. Guelph	Sources of Intensity for Local Mode Overtones
D. Salahub	U. Montréal	Density Functional Theory and the Quantum Chemistry of Transition Metal Systems
<b>1989</b>		
J.P. Toennies	MPI, Göttingen	Hot Molecules and Cold Clusters
P. Corkum	NRC	Femtosecond Lasers for Chemical Physics
A.P. Hitchcock	McMaster U.	Inner-Shell Excitation Spectroscopy of Molecules
S. Mukamel	U. Rochester	Solvation Dynamics in Electron Transfer and Non-Linear Optical Susceptibilities: A Unified Description
R. Lipson	U. Western Ontario	VUV Laser Spectroscopy of Reactive States: Valence to Ion-Pair Transitions of Halogens
V.H. Smith	Queen's U.	Adventures in the 3-Body Problem: Exotic Molecules

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<b>1988</b>		
R.S. Berry	U. Chicago	How Good is Neil Bohr's Model of the Atom?
D. Rosner	U. Western Ontario	Testing Quantum Electrodynamics with Lasers and Simple Atoms
R.F.W. Bader	McMaster U.	A Quantum Theory of Molecular Structure
M.J. Dignam	U. Toronto	Spectroscopy of Ordered Molecular Assemblies
W. Siebrand	NRC	Tunneling of Hydrogen and Heavier Atoms
S. Filseth	York University	Energy Disposal in CN Produced by Photodissociation and Reactions
<b>1987</b>		
D.R. Herschbach	Harvard U.	Electronic Structure in Strange Dimensions
P. Norton	U. Western Ontario	Phase Transitions and Surface Reactivity
R.J.D. Miller	U. Rochester	Picosecond Dynamics of Surface Mediated Electron Transfer Processes at Single Crystal Semiconductor Interfaces
B. Schlegel	Wayne State U.	Spin Pojection and Moller-Plessit Perturbation Theory
J. Reid	McMaster U.	Optically Pumped NH <sub>3</sub> Laser: A New Approach to Stable Lasers
P. Brumer	U. Toronto	Chaotic Intramolecular Energy Transfer
<b>1986</b>		
Y.T. Lee	U.C.-Berkeley	Dynamics and Spectroscopy by Lasers and Molecular Beams
A. Bandrauk	U. Sherbrooke	Non-Adiabatic Effects in Multiphoton Transitions
T.H. Ellis	U. Montréal	Direct Measurements of Surface Kinetics by Time Resolved EELS
W.L. Hase	Wayne State U.	Potential Energy Surface Properties and Dynamics of H + CH <sub>3</sub> Recombination and IVR in Benzene
G. Scoles	U. Waterloo	Atomic Beam Scattering Studies of Intermolecular Forces at the Gas-Solid Interface
S.C. Wallace	U. Toronto	Excited State Dynamics of Van der Waals Clusters
<b>1985</b>		
R.B. Gerber	Hebrew U.	Molecular Dissociation in Impacts on Crystal Surfaces
J.C. Polanyi	U. Toronto	Photodissociation and Photodesorption of Adsorbed Species
T.F. George	SUNY-Buffalo	Molecular Dynamics and Spectroscopy at Gas-Solid Interfaces
J. Hepburn	U. Waterloo	State-to-State Photofragmentation of Small Molecules and Molecular Clusters
C.M. Sadowski	York University	Energy Disposal in the Photodissociation of Triatomic Cyanides
M. Moskovitz	U. Toronto	Photochemistry at Metal Surfaces