

Regional Symposium on  
**MOLECULAR DYNAMICS, PHOTODISSOCIATION AND RELATED TOPICS**

September 26-28, 1985

at the University of Waterloo

**SESSION I:** Thursday, September 26, P.M. Chem. 2 - 171  
Chairman: R.J. Le Roy

- 8:00 - 8:40 T.F. George (S.U.N.Y. Buffalo).  
Molecular dynamics and spectroscopy at gas-solid interfaces.
- 8:40 - 9:00 P.A. Hackett, M. Humphries, M. Quack\* and D.M. Rayner, (NRC, Ottawa and \*ETH, Zurich).  
Non-linear infrared multiphoton photochemistry: the exception or the rule?
- 9:00 - 9:20 G. Hunter and R.L.P. Wadlinger (York University).  
Photons and multiphotons: a photon model based upon Maxwell's equations.
- 9:20 - 9:40 P. Mukherjee and H.S. Kwok (S.U.N.Y. Buffalo).  
Picosecond laser studies of the quasi continuum of polyatomic molecules.
- 9:40 - 10:00 R.S. Dumont and P.W. Brumer (Univ. of Toronto).  
Classical unimolecular decay: The dynamical foundations of statistical theories.

**SESSION II:** Friday, September 27, A.M. Needles Hall - 3001  
Chairman: J. Dove

- 9:00 - 9:40 J.W. Hepburn (Univ. of Waterloo).  
State to state photofragmentation of small molecules and molecular clusters.
- 9:40 - 10:00 D.M. Rayner, A.S. Nazran, M. Drouin and P.A. Hackett, (NRC, Ottawa).  
Making CoCO. The photodissociation dynamics of tricarbonylnitrosocobalt at 248 nm.
- 10:00 -10:20 J.C. Petersen and D.A. Ramsay (NRC, Ottawa).  
Some novel aspects of microwave-optical double resonance spectroscopy:  
a) Studies of rotational relaxation in thioformaldehyde and b) how to probe high rovibronic levels of the ground state.
- 10:20 -10:40 P.M. Aker and J.J. Sloan (NRC, Ottawa).  
Energy partitioning in some reactions of O(<sup>1</sup>D<sub>2</sub>) atoms, measured by time-resolved Fourier transform emission spectroscopy.
- 10:40 -11:00 Coffee Break.

**SESSION III:** Friday, September 27, A.M.                      Needles Hall - 3001  
Chairman: T.E. Gough

- 11:00 - 11:50 J.C. Polanyi (Univ. of Toronto).  
Photodissociation and photodesorption of adsorbed species.
- 11:50 - 12:10 W.R. Creasy and J.M. Farrar (Univ. of Rochester).  
Reactive scattering from double minimum potentials.
- 12:10 - 12:30 M. Menzinger (Univ. of Toronto).  
Global dynamics and recent results on multi-potential-energy-surface-  
reactions of the type: Ca + F<sub>2</sub>.

**SESSION IV:** Friday, September 27, P.M.                      Needles Hall - 3001  
Chairman: N.R. Isenor

- 2:00 - 2:50 C.M. Sadowski (York University).  
Energy disposal in the photodissociation of triatomic cyanides.
- 2:50 - 3:10 Liang Wang and P.N. Prasad (S.U.N.Y. Buffalo).  
Vibrational population distributions of electronically excited CN and C<sub>2</sub>  
radicals in laser driven plasma.
- 3:10 - 3:30 J. Orlando, D.R. Smith, P. Beckwith and J. Reid (McMaster Univ.).  
Infrared multiphoton dissociation of CDCl<sub>3</sub>/CHCl<sub>3</sub>.

**SESSION V:** Friday, September 27, P.M.                      University Club

4:30 - 6:30 POSTER SESSION

- 1) M. Humphries, P.A. Hackett and S.A. Mitchell (NRC, Ottawa).  
A spectroscopic determination of the ionization potential of free zirconium atoms via  
multiphoton ionization spectroscopy.
- 2) S.A. Mitchell, M. Cantin and P.A. Hackett (NRC, Ottawa).  
Photodissociation dynamics for Gallium trimethyl and kinetics of some Gallium (<sup>2</sup>P<sub>1/2</sub>)  
reactions.
- 3) W. Keogh and R.J. Le Roy ((GWC)<sup>2</sup>, Univ. of Waterloo).  
A uniform semiclassical inversion method for determining bound-state potential curves  
from photodissociation or bound-continuum emission data is developed and applied to NaK.
- 4) D. Gruner and P. Brumer (Univ. of Toronto).  
Fluorescence: A probe for intramolecular dynamics?
- 5) M. Moskovits and R. Wolkow (Univ. of Toronto).  
Electron energy loss and surface enhanced Raman studies of benzene on silver.
- 6) G.W. King and T.D. McLean (McMaster Univ.)  
The three-photon absorption spectrum of the iodine molecule; analysis of the 3P1C and  
3P2C resonance spectra of <sup>127</sup>I<sub>2</sub> and <sup>129</sup>I<sub>2</sub> obtained by laser excitation.
- 7) E.J. Reiner, A.G. Harrison, M.R. Peterson and R.A. Poirier (Univ. of Toronto).  
Fragmentation reactions of protonated gaseous amines.
- 8) I. Waller and J.W. Hepburn (Univ. of Waterloo).  
193 nm photofragmentation of CS<sub>2</sub>: S(<sup>3</sup>P): S(<sup>1</sup>D) branching ratio and dynamics.
- 9) J. Orlando, D.R. Smith, P. Beckwith and J. Reid (McMaster Univ.)  
A technique for detecting ppm of DCl using tunable diode laser absorption spectroscopy.
- 10) T.E. Gough, M. Mengel, P. Rowntree and G. Scoles (Univ. of Waterloo).  
Infrared spectroscopy at the surface of clusters: a new type of surface spectroscopy.

6:30 DINNER

**SESSION VI:** Saturday, September 28 A.M. Needles Hall - 3001  
Chairman: D.E. Irish

9:00 - 9:50 M. Moskovits (Univ. of Toronto).  
Photochemistry at metal surfaces.

9:50 - 10:10 H.B. Levene and D.S. Perry (Univ. of Rochester).  
On the nature of high  $\text{CF}_4$  vibrational levels excited by proton energy loss spectroscopy.

10:10 - 10:30 C. Brown, D.R. Smith and J. Reid (McMaster Univ.)  
Infrared multiphoton dissociation of  $\text{C}_2\text{F}_6$ : Product yields and mechanism.

10:30 - 10:50 Coffee Break.

**SESSION VII:** Saturday, September 28 A.M. Needles Hall - 3001  
Chairman: G. Scoles

10:50 - 11:40 R.B. Gerber (Hebrew Univ. of Jerusalem).  
Molecular dissociation in impacts on crystal surfaces.

11:40 - 12:00 J.E. Dove and M.E. Mandy (Univ. of Toronto) and N. Sathyamurthy and T. Joseph (I.I.T. Kanpur).  
Dynamics of collision-induced dissociation.