

Dr. Andrew J. Hudson

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Career History

- Sept. 2005- present: EPSRC Advanced Research Fellow, School of Chemistry, University of Bristol.
- March 2002- Aug. 2005: Senior Scientist, NovX Systems, Markham, Ontario. Canada.
- Sept. 2001- March 2002: Materials Scientist, NovX Systems, Markham, Ontario. Canada.
- Aug. 2000- Sept. 2001: Postdoctoral Research Fellow, Dept. of Mechanical and Industrial Eng., University of Toronto.
Mentors: Professor Jan Spelt & Dr Manfred Hubert.
- Sept. 1998- July 2000: Postdoctoral Research Fellow, Dept. of Chemistry, University of Toronto.
Mentor: Professor John C. Polanyi.

Education

- 1994-1998: Ph.D. in Experimental Chemical Physics, Dept. of Chemistry, University of Toronto.
Supervisor: Professor John C. Polanyi.
- 1990-1994: B.A. in Chemistry, First Class, New College, Oxford University.
Part II Supervisor: Professor T. P. Softley.

Awards

- EPSRC Advanced Research Fellowship, 2005-2010
- Industrial Fellowship, Materials and Manufacturing Ontario, 2000-2001.
- F. E. Beamish Prize in Physical Chemistry, University of Toronto, 1998.
- Teaching Award, University of Toronto, 1996.
- University of Toronto Open Fellowship, 1997-1998.
- University of Toronto International Student Award, 1994-1998.
- British Gas Research Scholarship, 1994-1997.
- Book Award, Oxford University, 1993.
- Book Award, New College, Oxford University, 1993 & 1994.
- Scholarship from New College, Oxford University, 1991-1994.

Grants

- (2) Principal Investigator, "Experimental Study of Nonadiabatic Dynamics in Photoinduced Reactions of Complexes. EPSRC Standard Research Grant", EP/C539648/1, value: £242,942, duration: 1 April '06 to 31 March '09.
- (1) EPSRC Advanced Research Fellowship, EP/C53963X/1, value £290,428, duration: 5 Sept. '05 to 4 Sept '10.

Grant Applications in Progress

- (3) Principal Investigator, Royal Society Paul Instrument Fund, "Single-Molecule Fluorescence Spectroscopy in Optically-Tweezed Microparticles".
- (2) Joint-Principal Investigator, The Wellcome Trust, "Novel Application of Single-Molecule Fluorescence Spectroscopy in Molecular Biology" with Dr. Mark Dillingham, Department of Biochemistry, University of Bristol.
- (1) Co-Investigator, EPSRC, "Characterisation of the Properties and Dynamics of Single Microparticles" with Dr J P Reid.

Patents

- (2) Patent application in process: Automated Analyzer (Filed: March 7th 2006).
- (1) Patent pending: US2003168939, Device and method of driving piezoelectric actuators for fast switching of wavelengths in a fiber-Bragg grating (Filed: Dec. 10th 2002, published: Sept. 11th 2003).

Teaching Experience

- “Advanced Calculus for Chemistry Students”, Level 1, 12 lectures (Spring '06,'07).
- Level 1 Physical Chemistry tutorials, 1hr/week (Oct. '05-present).
- Designed a laboratory practical for Level 2 Physical Chemistry (joint with Dr. J. P. Reid)
- Laboratory Demonstration, ~12hrs/term (Oct. '05-present)
- Level 2&3 Physical Chemistry Workshops, ~8hrs/year (Oct. '05-present)
- Level 2 Physical Chemistry Problem Classes, ~3hrs/year (Oct. '05-present)

Academic Activities

- Review articles for the journal Physical Chemistry Chemical Physics
- Review grant applications for the Engineering and Physical Sciences Research Council.
- Organise the seminar program for Physical and Theoretical Chemistry at the University of Bristol.

Academic Talks

- (5) Spectroscopy and Dynamics Groups, Department of Chemistry, University of Warwick, July 2006.
- (4) British Gas, Loughborough, England, January 1999.
- (3) Max-Born Institute, Berlin, Germany, December 1998.
- (2) Department of Chemistry, University of Southern California, U.S.A., November 1998.
- (1) Department of Chemistry, University of Pennsylvania, U.S.A., November 1998.

Conference Presentations

- (10) Spectroscopy and Dynamics Interest Group of the RSC Faraday Division, Oxford, England, December 2006 (poster presentation).
- (9) Lasers for Science Facility User Meeting, Abingdon, Oxfordshire, England, November 2006 (oral presentation).
- (8) International Microelectronics and Packaging Society (IMAPS), Advanced Technology Workshop on Optoelectronics Packaging, Bethlehem, Pennsylvania, U.S.A., October 2001 (contributing author).
- (7) National Fiber Optic Engineers Conference, Baltimore, Maryland, U.S.A., July 2001 (contributing author).
- (6) Faraday Discussions of the Chemical Society, England, April 2001 (principal author).
- (5) University-Industry Opportunities in Polymer Physics Workshop, Guelph, Canada, April 2001 (oral presentation).
- (4) Gordon Research Conference on Molecular Energy Transfer, Ventura, California, U.S.A., January 2001 (poster presentation).
- (3) IEEE-CMPT/IMAPS-UK/IEEE-CMPT Workshop (POLY'2000), Polymeric Materials for Microelectronics and Photonics Applications, London, England, December 2000 (oral presentation).
- (2) Faraday Discussions of the Chemical Society, Sussex, England, December 1997 (oral presentation).
- (1) XXII Informal Conference on Photochemistry, Minneapolis, U.S., June 1996 (poster presentation).

List of Publications

- (12) K. J. Knox, J. P. Reid, K. L. Hanford, A. J. Hudson, & L. Mitchem, "Direct measurements of the axial displacement and evolving size of optically-trapped aerosol droplets." *J. Optics A: Pure and App. Optics*, accepted (2007).
- (11) B. Yacobi, A. J. Hudson, S. C. Martin, K. Davis & M. Hubert, "Applications of Adhesive Bonding in Assembling Electronic and Photonic Structures and Devices.", *Appl. Phys. Rev. A*, 91, 1 (2002).
- (10) A. J. Hudson, S. C. Martin, M. Hubert & J. K. Spelt, "Characterization of the Properties of UV-Cured Adhesives: Optical Measurements of Cure Shrinkage.", *J. Electronic Packaging*, 124, 34 (2002).
- (9) A. J. Hudson, F. Y. Naumkin, H. B. Oh, J. C. Polanyi & S. A. Raspopov, "Dynamics of Harpooning Studied by Transition State Spectroscopy; III. $\text{Li}^* + \text{FCH}_3 \rightarrow \text{LiF} + \text{CH}_3$.", *Faraday Discuss. Chem. Soc.*, 118, 191 (2001).
- (8) J. B. Giorgi, A. J. Hudson, T. G. Lee, F. Y. Naumkin, H. B. Oh & J. C. Polanyi, "Harpooning Studied by Transition State Spectroscopy."; *Abstr. Pap. Am. Chem. Soc.* (Mar. 2000).
- (7) A. J. Hudson, H. B. Oh, J. C. Polanyi & P. Picuch, "Dynamics of Harpooning Studied by Transition State Spectroscopy; II. $\text{Li}^* + \text{FH} \rightarrow \text{LiF} + \text{H}$."; *J. Chem. Phys.*, 113, 9897 (2000).
- (6) J. B. Giorgi, A. J. Hudson, T. G. Lee, F. Y. Naumkin, H. B. Oh & J. C. Polanyi, "Harpooning Studied by Transition State Spectroscopy."; *Abstr. Pap. Am. Chem. Soc.*, 218, 388-Phys Part II (Aug. 22 1999).
- (5) X. Y. Chang, R. Ehlich, A. J. Hudson, P. Picuch & J. C. Polanyi, "Dynamics of Harpooning Studied by Transition State Spectroscopy."; *Faraday Discuss. Chem. Soc.*, 108, 411 (1997).
- (4) A. J. Hudson & J. C. Polanyi. Comments; *Faraday Discuss. Chem. Soc.*, 108, (i)460, (ii)462, (iii)463, (1997).
- (3) X. Y. Chang, R. Ehlich, A. J. Hudson, J. C. Polanyi & J.-X. Wang, "Photoinduced charge-transfer dissociation in van der Waals complexes; V. $\text{Na} \cdots \text{XCH}_3$ (X=F, Cl, and Br)."; *J. Chem. Phys.*, 106, 3988 (1997).
- (2) T. P. Softley, A. J. Hudson & R. Watson, "Multichannel quantum defect theory stark effect calculation of autoionization lifetimes in high-n Rydberg states of Ar, N_2 and H_2 ."; *J. Chem. Phys.*, 106, 1041 (1997).
- (1) T. P. Softley & A. J. Hudson, "Multichannel quantum defect theory simulation of the ZEKE photoelectron spectrum of H_2 ."; *J. Chem. Phys.*, 101, 923 (1994).