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Professor Richard P Tuckett MA, PhD, DSc, FRSC, MIOP, FHE

Professor of Chemical Physics

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About

Richard Tuckett is Professor of Chemical Physics, and Director of the 1st year and Foundation Year Undergraduate Classes in the School of Chemistry. He also has lead responsibility for all Natural Science students offering Chemistry as a major component.

Richard has published over 130 research and review papers in the international literature of chemical physics / physical chemistry. He has received major grants from EPSRC and STFC research councils, the Royal Society, and the EU.

Richard is a committed teacher of quantitative physical chemistry to all levels of the Undergraduate M Sci 4-year Masters Course in Chemistry.

Richard is committed to helping every student achieve and exceed their potential, be it at UG or PhD level of study.

Qualifications

- Professor of Chemical Physics, University of Birmingham, 2005
- D Sc, University of Birmingham, 2001
- Fellow, Higher Education Academy, 2001
- Fellow, Royal Society of Chemistry, 2001
- Reader in Chemical Physics, 1998
- Senior Lecturer, University of Birmingham, 1993
- Lecturer, University of Birmingham, 1986
- MA, PhD, University of Cambridge, 1979
- BA (Hons), 1st class, University of Cambridge, 1975

Biography

Richard Tuckett qualified with a BA (Hons) and PhD from the University of Cambridge in the late 1970s. His PhD was on the Use and Development of a SISAM interferometer operating in the near-infrared to study electronic spectra of free radicals in the gas phase.

He was awarded a PostDoctoral Fellowship by the SERC, and he chose to work with Professor Alan Carrington, FRS, in the Department of Chemistry at University of Southampton. There, he built a crossed supersonic beam / electron beam apparatus to study the electronic spectra of cold molecular ions. He continued this work with funding from a College Research Fellowship from Gonville and Caius College, Cambridge, from 1980 to 1983.

He was awarded an SERC Advanced Fellowship in 1983. He moved to Birmingham in 1985, and was appointed to the Staff in 1986. He has had two extended periods of Study Leave whilst at Birmingham; Stanford USA (1993) and ETH Zurich Switzerland (2006).

His main research areas now are in the field of vacuum-ultraviolet spectroscopy and unimolecular dynamics of polyatomic gas-phase molecules, especially of long-lived greenhouse gases. He uses synchrotron radiation from national sources for these studies, and currently is a dedicated user of the Swiss Light Source (Paul Scherrer Institute, Switzerland).

He is Director of the 1st year Undergraduate Class in the School of Chemistry, and has overall pastoral responsibility for the Induction and Welfare of new students to this degree programme.

Teaching

Teaching Programmes. Since 2010 Richard has taught UG courses in:

- M Sci (Chemistry) Year 4 course on Advanced Kinetics and Reaction Dynamics.
- B Sc and M Sci (Chemistry) Year 3 courses on Electronic Spectroscopy and Atmospheric Chemistry.
- B Sc and M Sci (Chemistry) Year 1 courses on Chemical Thermodynamics, Elementary Maths, Maths for the Physical Sciences.

Postgraduate supervision

Richard has supervised ca. 20 students through to successful MSc and PhD degrees.

Research

Research themes

Vacuum-UV spectroscopy ; synchrotron radiation ; coincidence and imaging techniques ; polyatomic molecules ; ion-pair formation ; high-resolution thermochemistry ; threshold photoelectron techniques.

Research themes

All experiments and associated calculations are currently carried out on the vacuum-ultraviolet beamline at the 3rd generation synchrotron Swiss Light Source in Switzerland .

Other activities

- Part-time member of the multi-faith University Chaplaincy Team (appointed by Society of Friends (Quakers)), 2013 to date
- Treasurer, Cotterridge Quaker Meeting, 2012 to date
- Sailing Secretary, Barnt Green Sailing Club, 2011 to date
- Experienced mountaineer and hill walker
- Experienced amateur pianist and choral singer

Publications

- Harvey, J., Hemberger, P., Bodi, A. and Tuckett, R.P. (2013), Vibrational and electronic excitation in fluorinated ethene cations from the gound up, J. Chem. Phys., 138: 124301-1 - 124301-12 DOI: 10.1063/1.4795428.
- Harvey, J., Tuckett, R.P. and Bodi, A. (2012), A Halomethane Thermochemical Network from iPEPICO Experiments and Quantum Chemical Calculations J. Phys. Chem. A., 116: 9696-9705 DOI: 10.1021/jp307941k.
- Simpson, M.J. and Tuckett, R.P. (2012), A selected ion flow tube study of the reactions of CF^{+}, CF^{2+}, CF_3^{+} and $C_2F_4^{+}$ with C_2H_4 , C_2H_3F, CH_2F_4 and C_2HF_3. J. Phys. Chem. A., 116: 8119□8129 DOI: 10.1021/jp304768n.
- Harvey, J., Bodi, A., Tuckett, R.P. and Sztaray, B. (2012), The dissociation dynamics of energy-selected fluorinated ethene cations:from time bombs on a molecular level to double-regime dissociators.Phys. Chem. Chem. Phys.,14: 3935-3948 DOI: 10.1039/C2CP23878K.
- Simpson, M.J. and Tuckett, R.P. (2011), Vacuum-UV negative photoion spectroscopy of gas-phase polyatomic molecules, Int. Rev. Phys. Chem., 30: 197-273 DOI:. 10.1080/0144235X.2011.581000
- Tuckett, R.P. (2009), The Role of Atmospheric Gases in Global Warming, Climate Change : Observed Impacts on Planet Earth, Chapter 1, pages 3-19, ed. Trevor M Letcher, Elsevier.ISBN : 978-0-444-53301-2. DOI: 10.1016/B978-0-444-53301-2.00001-4.
- Simpson, M.J., Tuckett, R.P., Dunn, K.F., Hunniford, C.A., Latimer, C.J. and Scully, S.W.J. (2008), Vacuum-UV negative photoion spectroscopy of SF5CF3, J. Chem. Phys., 128, 124315-1 to 124315-10. DOI: 10.1063/1.2894869.
- Chim, R.Y.L., Cicman, P., Märk, T.D., Mayhew, C.A., Scheier, P., and Tuckett, R.P. (2007), Vacuum-UV and electron dissociative ionisation studies of SF5Cl, Int. J. Mass Spectrom., 261, 208-217. DOI : 10.1016/j.ijms.2006.09.025.

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