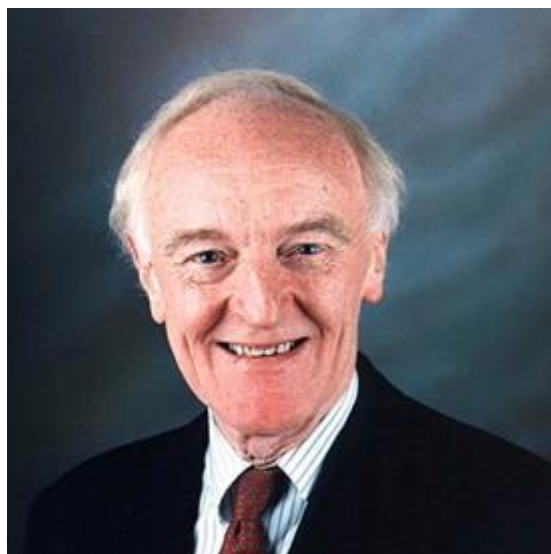


David Buckingham (1930-2021)



The distinguished Theoretical Chemist David Buckingham died on February 4, 2021 at the age of 91. He was born in Sydney, Australia on January 28, 1930. His father and mother were both born in England and emigrated to Australia in the early 1900s. He studied Chemistry at the University of Sydney where he published as many as eight papers on molecular properties before starting his PhD. He moved to the University of Cambridge in 1953 and was the first research student of John Pople. During this period he published several papers on the theory of intermolecular forces, the statistical mechanics of gases and the Kerr effect.

After finishing his PhD in just two years he was appointed to a Lectureship at Christ Church Oxford in 1955. He was subsequently promoted to a Lectureship in Inorganic Chemistry at the University of Oxford and a Tutorship and Studentship at Christ Church. In this period he started an experimental programme that led to the first measurement of a molecular quadrupole moment using a field-gradient induced birefringence method. He also studied theoretically and experimentally a variety of problems related to molecular properties including Cotton-Mouton and Rayleigh scattering effects. In addition, he published several papers on solvent effects on vibrational spectroscopy and on various topics in NMR.

In 1965 Buckingham was appointed to the new Chair of Theoretical Chemistry at the University of Bristol. Here he built up a very active group working experimentally and theoretically on a range of topics including molecules aligned in liquid-crystals, molecular properties such as hyperpolarizabilities and magnetic susceptibilities, magnetic optical activity, light scattering of molecules and NMR effects. He published several influential theoretical papers including a definitive article on "Permanent and Induced Molecular Moments and Long-Range Intermolecular Forces" which was published in *Advances in Chemical Physics* (Vol. 12, 1967). This work provided a systematic and general treatment for the interaction of a molecule with static and periodic electric fields, and also with another molecule.

In 1969 Buckingham was elected to the Chair of Chemistry and Head of the Theoretical Chemistry Department at the University of Cambridge. The two previous holders of this post were Sir John Lennard-Jones and Christopher Longuet-Higgins. He was also elected as a Professorial Fellow at Pembroke College. At Cambridge he continued his research on theory and experiment on the optical, electric and magnetic properties of molecules. A new direction with Laurence Barron was on the Raman scattering of circularly polarised light, out of which developed the field of Vibrational Optical

Activity. Another new project was his development with Patrick Fowler of a model to predict the structures of weakly-bound molecules. At Cambridge David Buckingham was a strong supporter of the work of the colleagues in his Department including Nicholas Handy, Anthony Stone, Roger Grice, Ruth Lynden-Bell, Paul Madden, David Clary, Roger Amos, Peter Knowles, Jeremy Hutson, Tim Softley and David Wales. He retired from the Chair in 1997.

David Buckingham was a highly conscientious editor of scientific journals. This included *Molecular Physics* (1968-72) and *Chemical Physics Letters* (1978-99). He was President of the Faraday Division of the Royal Society of Chemistry from 1987-89. In addition to the International Academy of Quantum Molecular Science he was elected to several academies including the Royal Society, the US National Academy of Sciences, the American Academy of Arts and Sciences, the Royal Swedish Academy of Sciences, and the Australian Academy of Science. He won several major prizes for his research including the Hughes Medal of the Royal Society, the Faraday Prize and Lectureship of the Royal Society of Chemistry, the Harrie Massey Medal of the Institute of Physics, the C. H. Townes Medal of the Optical Society of America, and the first Ahmed Zewail Prize for Molecular Sciences. He was made a Commander of the Order of the British Empire (CBE) in 1997.

David Buckingham played first class cricket for the University of Cambridge in the 1950s and was president of their cricket club for many years. He is survived by his wife Jillian, their children Lucy, Alice and Mark, and eight grandchildren.

A review of the work of A. D. Buckingham entitled "Optical, Electric and Magnetic Properties of Molecules" has been published (D. C. Clary and B. J. Orr, Eds, Elsevier, 1997).

An obituary in The Times can be found [here](#).

David Clary