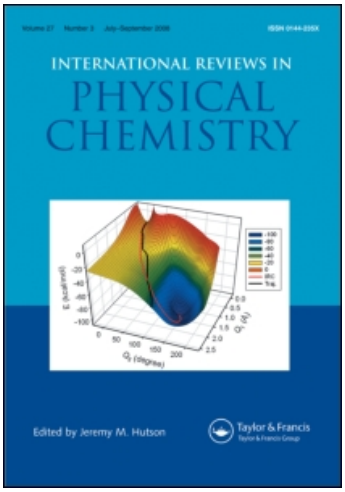

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Roger E. Miller

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Roger E. Miller

Roger Erwin Miller, the John B. Carroll Professor of Chemistry at the University of North Carolina at Chapel Hill and one of the world's leading physical chemists, died of cancer on November 6, 2005 at his home in Chapel Hill. Roger was born in Kitchener, Ontario on July 23, 1952, the son of Donald R. Miller (a problem-solver from whom he probably inherited his formidable experimental skills) and the late Ruth E. Peltz, who inspired him to pursue a career in science. Roger attended Kitchener Collegiate Institute High School and then from 1971 to 1975 studied physics at the University of Waterloo in Kitchener's twin city of Waterloo, Ontario. In that period he founded and led the Astronomy club of Kitchener, wrote a grant proposal to obtain the funds to build an observatory, and actually built a telescope, polishing the quite large mirror with his own hands.

From 1975 to 1980 Roger pursued a Master's and then a PhD degree at Waterloo, collaborating with Terry Gough, a spectroscopist, and Giacinto Scoles, at that time a specialist in molecular beam scattering experiments. Roger's thesis, born from the crossing of the two fields, introduced a completely new method to carry out infrared spectroscopy on beams of isolated molecules at unprecedented resolution. One of the first applications of this new technique, the photodissociation spectroscopy of Van der Waals complexes, was developed by Roger from 1980 to 1985 in collaboration with Bob Watts at the Australian National University in Canberra. They were the first to achieve rotational resolution for infrared spectra of complexes, so enabling a very long list of structural determinations and underpinning the ensuing progress in our knowledge of intermolecular forces.

In 1985 Roger was hired by the Department of Chemistry of the University of North Carolina at Chapel Hill at the level of Associate Professor. Three years later, he was promoted to full Professor with tenure. In 1996 he was named to the John B. Carroll Chair of Chemistry, also at UNC, a position that he held till he lost his last battle with cancer.

Roger had one of the most productive careers in physical chemistry that the world has seen or is likely to see. In 27 years, he published more than 200 highly significant papers, often showing the rest of us new limits for the techniques he employed and new possibilities that were thrown open by reaching them. For example, the helium nanodroplet spectroscopy that was introduced in Princeton in 1992 and so beautifully

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developed in Göttingen in the following years was totally transformed by Roger. In his hands, it became an incredibly versatile technique that can now be used to study a large variety of physicochemical phenomena and systems, such as non-equilibrium clustering of molecules, the chemical bonding of metal atom clusters and the chemistry of free radicals.

Roger carried out a plethora of truly novel experiments and produced many superbly trained graduate students and postdoctoral fellows. He asked profound questions about how molecules hydrogen-bond and self-assemble, how base-pairing and conformational dynamics occur in biomolecules, how highly reactive metals insert into chemical bonds, how chemical combustion can be probed by trapping intermediates, and how the path of a chemical reaction can be influenced with vibrational excitation. Roger's work consistently set the highest standards for our community. His talks and papers were shining examples of scientific vision and razor-sharp thinking, delivered with remarkable pedagogy and a refreshing absence of hype. It was his experimental ability, however, that was and will remain legendary. This ability, which he was able to transmit to his students, ensured that the signal-to-noise ratio in Roger's experiments was invariably higher by an order of magnitude than in similar experiments by others working in the same area. When asked how he achieved such performance, he would flash his famous sparkling smile and say 'All you have to do is to tweak the knobs of the apparatus properly!'

Roger Miller's research was recognized with numerous awards, including the W.B. Pearson Medal in Physics (1981), the Alexander von Humboldt-Stiftung Senior Scientist Award (1995), the Earle K. Plyler Prize of the American Physical Society (1997), the William F. Meggers Award of the Optical Society of America (2000), and the Spiers Memorial Lectureship of the Royal Society of Chemistry (2001). He was a member of the Editorial Boards of the *Journal of Chemical Physics* (1998–2001) and of *Molecular Physics* (from 2003) and Editor of *International Reviews in Physical Chemistry* (from 2004). He was a Fellow of the American Physical Society, and just a few months before his death he was elected Fellow of the Royal Society of London, the Science Academy of the United Kingdom.

Roger was active in The Church of Jesus Christ of Latter Day Saints, serving as the ecclesiastic leader of the student congregation on the Campus of the University of North Carolina. He loved his association with young people. He loved fishing, golfing, and boating. He enjoyed woodworking, and was an enthusiastic gardener. He loved music and the theatre, especially plays and musicals in London. He was a devoted husband and father, and especially reveled in his new role as a grandfather. His many and varied talents and interests revealed a zestful enthusiasm for all aspects of life.

Roger is survived by his wife, Deborah Ann Fraser (they were married in 1975), and his father Russ; his son Lance and his wife Becca; his daughter Rachel Hansen, her husband Rylan Hansen and their daughter Rylee Hansen; his son Roger Luke; and by his brother and sister, Gerry and Patti.

We are at a loss for words to describe the blow that the scientific community has experienced by our friend Roger's departure. We cannot help feeling a certain sense of guilt that we are still able, some of us slowed down by age, to work and teach. We still

cannot achieve results of the quality that Roger reached, routinely and apparently effortlessly, in his own laboratory.

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