

## John Miller - 65

P. W. Hemker · E. O' Riordan · G. I. Shishkin

John Miller was born in Dublin, Ireland in 1937. He attended school both in Ireland (Avoca School, Dublin) and England (Kingswood School, Bath) before entering Trinity College Dublin to study modern languages and literature. John decided to change disciplines. Victor Graham, a teacher in Trinity, helped him with tutorials in mathematics. He graduated in 1961 with two undergraduate degrees, one in Mathematics and the other in Natural Sciences (Physics, Chemistry, Mathematics). He travelled to MIT, where he studied Numerical Analysis under Professor Gilbert Strang. He was awarded a Ph. D. degree in Mathematics from MIT in 1965. His first published paper (with Strang) appeared in 1966 in the journal *Mathematica Scandinavica* and was titled "Matrix theorems for partial differential and difference equations".



After MIT John was an Assistant and then Associate Professor at the University of Massachusetts Boston campus. During this same period, he took two years leave of absence to spend two semesters in Chalmers Institute of Technology Gothenburg Sweden and one semester in the Istituto di Elaborazione della Informazione in Pisa Italy and two terms in Trinity College Dublin. From 1970 to 1976, he was in Trinity College Dublin. He spent two years in Nijmegen from 1976 to 1978, holding the Chair in Numerical Mathematics, but decided to return to Ireland for family reasons.

When John returned to Ireland in January 1970, he was the sole numerical analyst in Ireland. This isolation led him to organize numerous international conferences in Dublin. He began with a series of three conferences entitled "Topics in Numerical Analysis", which were all held in Dublin in 1972, 1974, and 1976. In Nijmegen in 1978, he jointly organized with P. W. Hemker the first conference on numerical analysis for singular perturbation problems. This was quickly followed by NASECODE I in 1979 and BAIL I in 1980, which were both held in Dublin. The NASECODE series of conferences continued up to NASECODE X in 1994. NASECODE I was the first international conference on numerical analysis for semiconductor devices and during the 1980's the NASECODE conference was the leading conference on the topic. In parallel with these conferences, John also promoted and ran the

BAIL series, which continued up to BAIL VII in 1994. The BAIL conferences were held in diverse places: Dublin, Novosibirsk, Shanghai, Colorado, and Beijing. The BAIL series has been restarted with the first of the new series taking place in Perth, Australia 2002 and BAIL 2004 will take place in Toulouse, France. The proceedings of the BAIL conferences contain papers on a broad range of theoretical and applied problems where boundary and interior layers occur.

Throughout his academic career, John maintained contacts with colleagues in many parts of the world, including Russia. These led him to stage BAIL IV in Novosibirsk in 1986. The resulting Irish-Russian contacts have continued to flourish over the years and now there is ongoing collaboration between several Irish and Russian researchers. John also maintained close contacts with many colleagues in the USA. In the 1980s he was simultaneously appointed to the positions: Adjunct Professor at Case Western Reserve University, Cleveland, Ohio and Director, Institute for Computational Mechanics in Propulsion, NASA Cleveland, Ohio, USA; but he did not take up these positions due to administrative changes in NASA.

Within Ireland, John continually sought ways to promote computational mathematics. He has supervised the work of over thirty graduate students in numerical mathematics and, over the years, has won research contracts in the research programs of the European Commission, Enterprise Ireland and the US Army, which he used to fund his research students. He has served as President of the Irish Mathematical Society; he was the founding President of the Irish Society for Scientific and Engineering Computation; he played a leading role in the formation of INCA, the Institute for Numerical Computation and Analysis, of which he is now the Director. The key achievement of the INCA activity is the development of a strong Irish team with unrivalled experience in the numerical solution of singular perturbation problems.

John was awarded a Sc. D. degree by Trinity College Dublin for his published work. He became a Fellow of Trinity College in 1975, and he is now a Fellow Emeritus. He has edited over fifty volumes of journals, conference proceedings, and lecture notes. At the moment he is a member of the Editorial Boards of two scientific journals: *Computational Methods in Applied Mathematics* and *Journal of Computational Mathematics*.

The bulk of his publications (over one hundred published papers and three research monographs) has been in numerical analysis for singular perturbation problems and semiconductor device modelling. He has also published papers on general numerical analysis, zeros of polynomials and mathematical models associated with drug delivery systems, riblets, elasticity and classical problems in fluid dynamics. This reflects John's continued interest in applied numerical analysis.

Since retiring from Trinity College, he has devoted himself essentially full-time to his research interests, which include special numerical methods for linear and nonlinear partial differential equations with solutions exhibiting multiscale behavior, especially for problems with a high Reynolds number, and scientific data analysis for spike trains in neuroscience. As a specific example of this recent activity, John coorganized a minisymposium devoted to numerical methods for singularly perturbed problems at the conference "Computational Methods in Applied Mathematics", held in Minsk in July 2003. He is also a regular visitor to the National University of Singapore. We hope that John continues his interests in applied mathematics and enjoys all the new ventures that he undertakes.