LONDON MATHEMATICAL
SOCIETY

INSTITUTE OF MATHEMATICS
AND ITS APPLICATIONS

David Crighton Medal 2006

The Councils of the London Mathematical Society and the Institute of Mathematics and its Applications award the 2006 David Crighton Medal for services to Mathematics and to the mathematics community to Professor Sir Christopher Zeeman, F.R.S., Honorary Fellow and formerly Principal of Hertford College, Oxford, in recognition of his long and distinguished service to mathematics and to the mathematical community in all areas – in research, to mathematics in higher education, to the mathematical societies, and in outreach activities with schools and the public.

Sir Christopher's research falls into two main periods. His early work was mainly in PL topology, where he proved a number of major theorems, notably the unknotting of spheres of codimension three in 1960, and the topological Poincaré Conjecture in 1962. Much of his later work was in dynamical systems and singularity theory (particularly catastrophe theory) following the pioneering ideas of René Thom. He contributed to the theoretical side of the subject, but his most influential work was in applications. In particular, he argued that the qualitative theory of singularities could be applied to the social and biological sciences, which he hoped would lead to more specific quantitative models as the topic developed. His ideas have made their way into many areas of science and mathematics. Modern bifurcation theory has been revolutionised by singularity-theoretic techniques; recently catastrophe theory has been 'rediscovered' in major papers in *Science* and *Nature* on ecology and molecular structure, for example.

He played important roles in almost all activities of the mathematical community. In 1964 he created the Department of Mathematics and the Mathematics Research Centre at the University of Warwick as its Foundation Professor. His vision and leadership were key to the department's long-term success. As chair of the Mathematics Committee of SERC he created the Nonlinear Systems Initiative which went on to become the Applied Nonlinear Systems Initiative. He created HoDoMS – the committee that represents mathematics departments. He chaired the inaugural Scientific Committee of the Newton Institute that oversaw its creation and chose the programmes during its first ten years. He is a past-President of the London Mathematical Society (1986–88) and received the Senior Whitehead Prize of the Society in 1982.

He was a pioneer in the area of public engagement with mathematics, and has a strong involvement with school mathematics. As early as 1967 he was speaking on (the then) BBC Third Programme on topics such as topology. He delivered the 1978 Royal Institution Christmas Lectures on BBC television – the first time in the 150-year history of these lectures, founded by Michael Faraday, that the topic was mathematics. These lectures led Sir Christopher to start the Royal Institution Mathematics Masterclasses for talented young people. He was Gresham Professor of Geometry from 1988 to 1994, delivering an annual series of public lectures. For his work in the public understanding of science he received the prestigious Royal Society Faraday Medal in 1988. He served as the President of the Mathematical Association in 2003/04, a post to which he brought his customary enthusiasm and ideas, ensuring that the power and beauty of mathematics is at the heart of mathematics education, and that the wider public should have inspirational opportunities to experience this for themselves.