

Raymond F. BISHOP: Short Biography

Raymond F. Bishop is Distinguished Emeritus Professor of Theoretical Physics in the Theoretical Physics Group of the School of Physics and Astronomy at the University of Manchester. In 2005 he was awarded the [Eugene Feenberg Memorial Prize](#) in Many-Body Physics, with a citation that reads *“for his development of the coupled-cluster method toward a comprehensive ab initio approach, and innovative applications across the full spectrum of subfields of quantum many-body physics.”* The Feenberg Prize is the premier international award in Professor Bishop’s field of research, and he was proud to be the first awardee from a British university. A major international conference on Microscopic Approaches to Many-Body Theory, attended by leading experts from nearly 20 different countries, was also held in Manchester in 2005 to honour his achievements on the occasion of his 60th birthday.

Professor Bishop’s main field of research has been microscopic quantum many-body theory and its applications to systems in nuclear physics, subnuclear physics and quantum field theory, condensed matter physics, quantum fluids and ultra-dense matter, statistical physics, and quantum information theory. He has authored some 250 refereed publications in these fields. He is particularly well known internationally for his pioneering work in developing and applying the coupled cluster method to the point where it is now widely acknowledged as providing one of the most pervasive (possibly the most pervasive), most powerful, and most successful of all fully microscopic formulations of quantum many-body theory. It has been applied to more systems in quantum field theory, quantum chemistry, nuclear, subnuclear, condensed matter and other areas of physics than any other competing method. It has yielded numerical results which are among the most accurate available for an incredibly wide range of both finite and extended systems on either a spatial continuum or a regular discrete lattice. The application of the coupled cluster method to strongly-correlated low-dimensional quantum magnets and other modern materials is a major direction of his current research work.

Since 1980 Professor Bishop has also given around 250 talks on his research, more than half of which have been papers at international conferences (the majority of which were invited plenary or keynote talks), and some 120 or so of which have been invited seminars or colloquia at universities or research institutes in more than 20 different countries. Over the years he has had many productive collaborations with colleagues in such countries as Spain, Germany, Finland, Poland, Czechoslovakia (as it was then), and USA.

Professor Bishop received his physics training on both sides of the Atlantic. After gaining a First Class BA Honours Degree in physics in 1966 from the University of Oxford, where he held an Open Scholarship at The Queen’s College, he went to USA with both a NATO Scholarship and a Fulbright Fellowship. After receiving his PhD in theoretical physics in 1971 from Stanford University he returned to the UK for a further five years, during which time he held joint positions in the Department of Physics at Manchester University and the Theory Division at Daresbury Laboratory. He then moved back to USA to take up joint positions in the Department of Physics at the University of California at Berkeley and the Nuclear Science Division at Lawrence Berkeley Laboratory. In 1979 he returned to the University of Manchester Institute of Science and Technology (UMIST) where he occupied the Chair in

Theoretical Physics from 1988, and during which time he served as Head of both the Department of Mathematics and the Department of Physics. He has also held Visiting Professorships at more than ten universities in Europe and USA.

Professor Bishop is a Fellow of both the UK Institute of Physics and the UK Institute of Mathematics and Its Applications. He has served on a number of committees of the Engineering and Physical Sciences Research Council, the main UK funding agency for physics research, including its first ever Physics Programme Evaluation Panel. He serves as a member of the Scientific Advisory Committees for a number of leading research institutes throughout Europe, and has served on the scientific organizing committees for more than 25 international conferences. He served an unprecedented three terms of office from 1991-99 as Chair of the International Advisory Committee for the series of international conferences on Recent Progress in Many-Body Theories, the premier series of international meetings in his field. He is Chair of the Editorial Board for *Advances in Quantum Many-Body Theory*, and serves as a member of several other editorial boards. He has been active in ventures promoting scientific interchanges between the UK and USA, serving recently, for example, as a member of the Selection Committee for the joint Royal Society-Fulbright Postdoctoral Science Fellowships. He has sat on committees of both the UK Institute of Physics and the American Physical Society. The latter body elected him to its very prestigious Fellowship, with a citation that reads *“for pioneering development of the coupled-cluster method and its innovative application across the full spectrum of subfields of physics, as well as for his leadership of the international community of many-body theorists.”*

Since coming to Manchester Professor Bishop has supervised the doctoral studies of over 20 postgraduate students who have successfully submitted and been awarded their PhD degrees. Over the same period he has also worked with and mentored approximately 20 postdoctoral research associates whom he has funded from research grants awarded to him by various grant-awarding bodies (– mostly EPSRC and its predecessors), and whose careers he has successfully managed. Over the same period he has been awarded more than 30 major research grants from UK Research Councils and other international research organizations, on the great majority of which he has been the Principal Investigator.