

Warner T. Koiter Medal



RAYMOND W. OGDEN

*Conferral at the Koiter Lecture,
2005 International Mechanical Engineering Congress and Exposition*

THE WARNER T. KOITER MEDAL was established in 1996 to recognize distinguished contributions to the field of solid mechanics with special emphasis on the effective blending of theoretical and applied elements, and on a high degree of leadership in the international solid mechanics community.

The medal honors the late Dr. Warner T. Koiter (1914-1997), world-renowned authority in the field of solid mechanics, and it commemorates his vast contributions as research engineer and teacher. The medal was funded by the Technical University of Delft, the Netherlands.

RAYMOND W. OGDEN, Ph.D., George Sinclair professor of mathematics, University of Glasgow, U.K., *for seminal contributions to nonlinear elasticity, including mathematical foundations and applications.*

Dr. Ogden is one of the world's leading researchers in the area on nonlinear solid mechanics, particularly nonlinear elasticity. One of the pioneers in the development of the field, he has made numerous seminal contributions.

Ogden has been the George Sinclair professor of mathematics at the University of Glasgow, U.K., since 1984. He served as head of the mathematics department from 1986 to 1994. Prior to joining the University of Glasgow, Ogden was professor of mathematics at Brunel University (1981-84); lecturer, then reader in mathematics at the University of Bath (1972-81); and Science Research Council (U.K.) research fellow at the University of East Anglia's School of Mathematics and Physics (1970-72), all in the United Kingdom.

He held visiting professorships at the University of Alberta and University of Victoria, Canada; the University of Cape Town, South Africa; the Technical University of Crete and National Technical University of Athens, Greece; the University of California at Berkeley; the Technical University of Graz and University of Vienna, Austria; the universities of Padova, Trento, Lecca and Salerno, Italy; the Institute of Fundamental Technological Research (Warsaw, Poland); the University of Cantabria, Spain; and the Royal Institute of Technology (KTH), Sweden.

Ogden is widely known for his outstanding work on large deformations of materials such as rubber. He developed new constitutive models for rubber that involve the principal stretches directly and are thus more accessible to the experimentalist in determining the relation between stress and strain; the models are now known as the Ogden materials.

He has worked on nonlinear response of composite materials and bifurcation problems; studied the effect of pre-stress on elastic surface waves, the effect of elastic surface coating on solids and the Mullins effect in rubber. He has studied elastic and

pseudo-elastic instability extensively. In recent years, he has begun research on biomechanical problems, with studies on soft tissue and arterial mechanics; and on magnetoelasticity and electroelasticity.

In addition to his important efforts in research, Ogden has maintained a regular program of teaching and supervision of doctoral and post-doctoral students, has lectured all over the world, and has been an active organizer of international conferences and symposia. He has organized advanced courses, including those taught at the International Centre for Mechanical Sciences (CISM) in Udine, Italy; and international conferences under the auspices of the European Mechanics Society (EUROMECH) and the International Union of Theoretical and Applied Mechanics.

Ogden has published more than 150 articles and books, including the classic text *Non-Linear Elastic Deformations* (Ellis Horwood, 1984), reprinted as a Dover paperback in 1997. He was editor in chief (1988-98) of the Institute of Mathematics and its Applications' (IMA) *Journal of Applied Mathematics* and is currently an editorial board member of eight international journals.

An ASME member since 2000, Ogden is a member of the Elasticity Committee. He is also a Fellow of the Royal Society of Edinburgh and the IMA; and a member of the Edinburgh Mathematical Society, the International Society for the Interaction of Mathematics and Mechanics, the London Mathematical Society, EUROMECH, the American Academy of Mechanics and the German Society for Applied Mathematics and Mechanics.

Ogden earned his bachelor's degree in mathematics and his Ph.D. in applied mathematics at the University of Cambridge, U.K., in 1966 and 1970, respectively.