J.B. PENDRY - CURRICULUM VITAE

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Date of Birth: 4th July, 1943

Degrees:	1965 BA, Cantab (Physics) 1969 MA, PhD,Cantab (Solid State Theory)
1962-65	Scholar of Downing College, Cambridge
1965-66	Part III Mathematics - postgraduate course
1966-69	Research student, Cavendish Laboratory, Cambridge
1969-73	Research Fellowship in Physics, Downing College, Cambridge
1969-71	ICI post-doctoral Fellow
1972-73	Member of Technical Staff in the Theoretical Physics Department, Bell Laboratories, Murray Hill, USA
1973-75	Senior Assistant in Research, Cavendish Laboratory, Cambridge
1973-75	Fellow in Physics and Praelector, Downing College
1975-81	Senior Principal Scientific Officer: Head of Theory Group, SERC Daresbury Laboratory
1981-	Professor of Theoretical Solid State Physics, Imperial College of Science and Technology, and Head of the Condensed Matter Theory Group
1983-85	Head of Experimental Solid State Physics Group
1984	FRS
1984	F. Inst. P.
1984-92	Associate Head of Physics Department
1992-93	Member, SERC Science Board, SERC Nuclear Physics Board
1992-94	Member of Council, Royal Society.
1993-96	Dean, Royal College of Science
1996-2002	Editor, Proceedings A of the Royal Society
1996-97	Leverhulme Trust Senior Research Fellowship
1997-1998	EPSRC Senior Research 5-Year Fellowship (resigned April 1998)
1998-2001	Head of Physics Department, Imperial College London
1998-2002	Member of Particle Physics and Astronomy Research Council
1998-2000	Commonwealth Scholarships Commissioner
2001-2002	Principal, Faculty of Physical Sciences, Imperial College London
2003-	EPSRC Senior Research 5-Year Fellowship
2004	Knight Bachelor
2005-	Chairman Physics sub panel of RAE 2008
2005	Fellow Optical Society of America

PRIZES AND MEDALS

1994	British Vacuum Council Prize and Medal
1996	Institute of Physics Dirac Medal and Prize
1996	International Surface Structure Prize
2003	Appleton Lecture
2004	Celsius Lecture, University of Uppsala, Sweden
2005	Royal Society Bakerian Lecture
2005	Larmor Lecture (Belfast)
2005	Fröhlich Lecture (Liverpool)
2005	EU Decartes prize for “Extending Electromagnetism through Novel Artificial Materials”
2006	Royal Medal

John Pendry is a condensed matter theorist. He has worked at the Blackett Laboratory, Imperial College London, since 1981. He began his career in the Cavendish Laboratory, Cambridge, followed by six years at the Daresbury Laboratory where he headed the theoretical group. He has worked extensively on electronic and structural properties of surfaces developing the theory of low energy diffraction and of electronic surface states. Another interest is transport in disordered systems where he produced a complete theory of the statistics of transport in one dimensional systems.

In 1992 he turned his attention to photonic materials and developed some of the first computer codes capable of handling these novel materials. This interest led to his present research, the subject of his lecture, which concerns the remarkable electromagnetic properties of materials where the normal response to electromagnetic fields is reversed leading to negative values for the refractive index. This innocent description hides a wealth of fascinating complications. In collaboration with scientists at The Marconi Company he designed a series of ‘metamaterials’ whose properties owed more to their micro-structure than to the constituent materials. These made accessible completely novel materials with properties not found in nature. Successively metamaterials with negative electrical permittivity, then with negative magnetic permeability were designed and constructed. These designs were subsequently the basis for the first material with a negative refractive index, a property predicted 40 years ago by a Russian scientist, but unrealised because of the absence of suitable materials. He went on to explore the surface excitations of the new negative materials and showed that these were part of the surface plasmon excitations familiar in metals. This project culminated in the proposal for a ‘perfect lens’ whose resolution is unlimited by wavelength. These concepts have stimulated further theoretical investigations and many experiments which have confirmed the predicted properties. The simplicity of the new concepts together with their radical consequences have caught the imagination of the world’s media generating much positive publicity for science in general.