

Peter Ware Higgs

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Date and Place of Birth

29 May 1929 at Newcastle upon Tyne, Northumbria, United Kingdom

Childhood

- Birmingham 1930-1941
- Bristol 1941-1946

Secondary Education

- Halesowen Grammar School, Worcestershire 1940-1941
- Cotham Grammar School, Bristol 1941-1946
- City of London School 1946-1947

University Education

- King's College, University of London 1947-1954

Degrees

- BSc (First Class Honours) in Physics 1950
- MSc 1951
- PhD 1954

Professional Career

- Royal Commission for the Exhibition of 1851 Senior Student –
King's College London 1953-1954
University of Edinburgh 1954-1955
- Senior Research Fellow, University of Edinburgh 1955-1956
- ICI Research Fellow, University of London
University College 1956-1957
Imperial College 1957- Dec 1958
- Temporary Lectureship in Mathematics, University College Jan 1959-1960
- Lecturer in Mathematical Physics, University of Edinburgh 1960-1970
(On leave University of North Carolina, Chapel Hill) (1965-1966)
- Reader in Mathematical Physics, University of Edinburgh 1970-1980

- (On leave at CERN, Geneva) (Oct-Dec 1976)
- Professor of Theoretical Physics, University of Edinburgh 1980-1996
- Professor Emeritus, University of Edinburgh 1996-

Fellowships

- Fellow of the Royal Society of Edinburgh (FRSE) 1974
- Fellow of the Royal Society, London (FRS) 1983
- Fellow of the Institute Of Physics (FInstP) 1991
- Fellow of King's College London 1998

Prizes

- Hughes Medal, Royal Society (with T W B Kibble) 1981
- Rutherford Medal, Institute of Physics (with T W B Kibble) 1984
- Scottish Science Award, Saltire Society and Royal Bank of Scotland 1990
- James Scott Prize Lectureship, Royal Society of Edinburgh 1993
(delivered April 1995)
- Paul Dirac Medal and Prize, Institute of Physics 1997
- High Energy and Particle Physics Prize, European Physical Society 1997
(with R Brout, F Englert)
- Wolf Prize in Physics (with R Brout and F Englert) 2004
- Oskar Klein Memorial Lecture and Medal, Stockholm Academy of Sciences 2009
- J J Sakurai Prize, American Physical Society (with R Brout, F Englert, R Guralnik, C Hagen and T W B Kibble) 2010

Honorary Degrees

- DSc University of Bristol 1997
- DSc University of Edinburgh 1998
- DSc University of Glasgow 2002
- Honorary Fellowship, University of Swansea 2008
- DSc King's College London 2009
- DSc University College London 2010

Publications

- “Theoretical Determination of Electron Density in Organic Molecules” (with C A Coulson, S L Altmann and N H March) *Nature* 168 1039 (1951)
- “Perturbation Method for the Calculation of Molecular Vibration Frequencies I” *J. Chem. Phys.* 21 1131 (1953)
- “A Method for Computing Zero-Point Energies” *J. Chem. Phys.* 21 1330 (1953)
- “Vibration Spectra of Helical Molecules” *Proc. Roy. Soc.* A220, 472 (1953)
- “Vibrational Modifications of the Electron Density in Molecular Crystals I” *Acta. Cryst.* 6 232 (1953)
- “Perturbation Method for the Calculation of Molecular Vibration Frequencies II” *J. Chem. Phys.* 23 1448 (1955)
- “Perturbation Method for the Calculation of Molecular Vibration Frequencies III” *J. Chem. Phys.* 23, 1450 (1955).
- “Vibrational Modifications of the Electron Density in Molecular Crystals II” *Acta. Cryst.* 8 99 (1955)
- “A Method for Calculating Thermal Vibration Amplitudes from Spectroscopic Data” *Acta. Cryst.* 8 619 (1955)
- “Vacuum Expectation Values as Sums over Histories” *Nuovo Cimento* (10) 4 1262 (1956)
- “On Four-Dimensional Isobaric Spin Formalisms” *Nuclear Physics* 4 1262 (1957)
- “Integration of Secondary Constraints in Quantized General Relativity” *Phys. Rev. Lett.* 1 373 (1958)
- “Integration of Secondary Constraints in Quantized General Relativity” *Phys. Rev. Lett.* 3 66 (1959)
- “Quadratic Lagrangians and General Relativity” *Nuovo Cimento* (10) 11 816 (1959)
- “Broken Symmetries, Massless Particles and Gauge Fields” *Physics Letters* 12 132 (1964)508 (1964)
- “Spontaneous Symmetry Breakdown without Massless Bosons” *Phys. Rev.* 145 1156 (1966)
- “Spontaneous Symmetry Breaking” two lectures at the 14th Scottish Universities Summer School in Physics, 1973, published in “Phenomenology of Particles at High Energy” 529-552 Academic Press (1974) ISBN 9780121971502
- “Dynamical Symmetries in a Spherical Geometry I” *J. Phys.* A12 309 (1979)
- “Inventing an Elementary Particle” INFN Eloisatron Project 9th Workshop “Higgs Particles - Physics Issues and Experimental Searches in High Energy Collisions”, Erice, Italy (15-26 Jul 1989). Published in “Higgs Particle(s): Physics Issues and Experimental Searches in High-Energy Collisions”

A Ali (ed.) Ettore Majorana International Science Series 50 1-5 Plenum Press (1990) ISBN 9780306435898

- “Spontaneous Symmetry Breaking 25 Years Ago” 28th International School of Subnuclear Physics “Physics up to 200 TeV”, Erice, Italy (Jul 1990). Published in “Physics up to 200 TeV” A Zichichi (ed.) The Subnuclear Series 28 439-444 (1990) ISBN 9780306439353
- Panel Session “Spontaneous Breaking of Symmetry” (with L M Brown, R Brout, T Y Cao, Y Nambu) 3rd International Symposium on the History of Particle Physics “The Rise of the Standard Model” (1992). Published in “The Rise of the Standard Model”, L Hoddesdon, L M Brown, M Riordan, M Dresden (eds.) Cambridge University Press, (1997) ISBN 978052157165
- “SBGT and All That” International Conference on “50 Years of Weak Interactions from the Fermi Theory to the W” Wingspread, Racine, Wisconsin USA (29 May - 1 Jun 1984). Published by University of Wisconsin at Madison. Reproduced in AIP. Conf. Proc. 300 159-163 (1994)
- “My Life as a Boson: The Story of The Higgs” Inaugural Conference of the Michigan Center for Theoretical Physics “2001 A Spacetime Odyssey” Ann Arbor, Michigan (21-25 May 2001). Published in “2001: A Spacetime Odyssey” M J Duff, J T Liu (eds.) World Scientific (2002) ISBN 9789810248062 and reproduced in Int. J. Mod. Phys. A17S1 86-88 (2002)
- “Prehistory of the Higgs Boson” Comptes Rendus Physique 8 970-972 (2007)