

## **Professor Sir Mark E Welland**

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Professor Sir Mark Welland started his career in nanoscience and nanotechnology at IBM Research Laboratories, Yorktown Heights, USA, where he was part of the team that developed one of the first scanning tunnelling microscopes. In 1985, appointed to a Lectureship in Electrical Engineering at the University of Cambridge, he set up the first tunnelling microscopy group in the UK and in 1991 he began the nanoscience research group. Sir Mark is currently Professor of Nanotechnology researching into a broad range of both fundamental and applied problems. These include protein mis-folding problems related to human diseases such as Alzheimer's, protein and peptide interactions at surfaces, biologically inspired nanomaterials for green technologies and nanoelectronics for future generation communications and sensing.

Sir Mark established a purpose built facility at the University of Cambridge, the Nanoscience Centre, which undertakes a variety of nano-related research programmes of an interdisciplinary nature. This was the base for the Interdisciplinary Research Collaboration (IRC) in Nanotechnology of which Sir Mark was the Director and whose highly successful legacy has been far reaching. He has substantive international connections in the USA, Japan, Europe, India and the Middle East. He established the Science and Technology Research Centre at the American University in Cairo, Egypt which he co-directed from 2003 to 2010 and from 2008 to 2012 was for the UK, the international principal investigator of the £100M World Premier Research Institute in nanomaterials based in Tsukuba, Japan. He has given a number of prestigious lectures that include the Turing Lecture, IEE and British Computing Society, 2002; the Sterling Lecturer, Annual Appointment made by the Sterling group of Universities, 2003; The Annual Materials Research Society of India Lecture, Mumbai, India, 2006 and the Max Planck Society Lecture 2007, MPI, Stuttgart, Germany, 2007. He was awarded the prestigious Rosetrees Trust Interdisciplinary Prize 2015 alongside Professor Andres Floto for research on tuberculosis drug treatments.

From April 2008 until May 2012, Sir Mark was Chief Scientific Adviser to the UK Government Ministry of Defence. In April 2011 he was presented with the US Secretary of Defense's Award for Exceptional Public Service. The award is one of the highest awards the Department of Defense can present to a representative of another Government. Also in April 2011 he received the National Nuclear Security Administration (NNSA) Gold Medal for Distinguished Service; the highest medal awarded by the NNSA.

Sir Mark was elected a Fellow of the Royal Society, a Fellow of the Royal Academy of Engineering, and a Fellow of the Institute of Physics in 2002, a Foreign Fellow of the National Academy of Sciences India in 2008 and a Foreign Fellow of the Danish Academy of Sciences in 2010. Sir Mark was awarded a Knighthood in the Queen's Birthday Honours list in 2011.

In addition to his scientific work Sir Mark has been involved in a number of reports, national and international, dealing with the societal, ethical and environmental issues of nanotechnology including the highly cited Royal Society and Royal Academy of Engineering report: "Nanoscience and nanotechnologies: opportunities and uncertainties," that reported to the UK Government in July 2004. He has taken part in many television and radio programmes for the BBC, SKY, Open University and University of the Air, Japan and written articles for the Guardian, FT and The Times in the UK. As part of a long-term commitment to engaging with schools across Europe Sir Mark designed a short DVD film (narrated by Stephen Fry and translated into 12 languages) that won the Science Short Film of the Year at Scinema 2010 and is one of the most popular University of Cambridge videos (over 300,000 hits).