

Professor Mark Thomson: Curriculum Vitae

Executive Chair of the Science and Technology Facilities Council (STFC) (2018–present). Responsible for providing overall leadership, and for the management and performance of STFC which is part of UK Research and Innovation (UKRI). He is responsible for an annual budget of about £900m. He also leads delivery of the UKRI Research and Innovation Infrastructure Roadmap with an investment portfolio estimated to be £1.6 billion. He represents the UK on the governing Councils of three major intergovernmental organisations; CERN, the Square Kilometre Array Observatory and the European Spallation Source.

Overview

Mark Thomson's main research activities are centred around three core areas. He is one of the leading figures in **neutrino physics**. Until April 2018, he was the co-spokesperson of the Deep Underground Neutrino Experiment (DUNE), which is the next generation of long-baseline neutrino oscillation experiment in the US, aiming to discover CP violation in the leptonic sector. He played a leading role in the development of the **first automatic reconstruction software** to process images from liquid argon detectors such as DUNE and MicroBooNE at Fermilab. He is also the world-leading expert on **high-granularity particle flow calorimetry**, which drives the design of future collider detectors. At CERN, he played a leading role in the precision measurements of the properties of the W and Z bosons with the OPAL experiment at the Large Electron-Positron (LEP) collider.

Academic and Professional Experience

- Co-spokesperson of the Deep Underground Neutrino Experiment (DUNE) collaboration (2015-18)
- University of Cambridge, Professor of Experimental Particle Physics at the Cavendish Laboratory and Professorial Fellow of Emmanuel College, Cambridge (2008-present)
- University of Cambridge, Reader in Experimental Particle Physics at the Cavendish Laboratory and Fellow of Emmanuel College, Cambridge (2004-2008)
- University of Cambridge, Lecturer in Physics at the Cavendish Laboratory and Fellow of Emmanuel College, Cambridge (2000-2004)
- CERN, Staff Research Physicist (1996-2000)
- CERN, CERN Fellow (1994-1996)
- University College London, Research Fellow in the High Energy Physics group (1992-1994)



Education

- University of Oxford, D.Phil. in Experimental Particle Astrophysics (1988-1991)
- University of Oxford, BA Physics (1985-1988)

Publications

Thomson is the author or co-author of more than 1100 publications in peer reviewed scientific journals covering a number of major areas in High Energy Particle Physics. In addition to his research activities, he is the author of "Modern Particle Physics", a best-selling undergraduate/graduate-level textbook in particle physics, which has been adopted for university physics courses around the globe.

Selected publications include:

- Modern Particle Physics, Thomson, M.A., Cambridge University Press (2013).
- Improved search for muon-neutrino to electron-neutrino transitions in MINOS, MINOS collaboration, Phys. Rev. **Lett** **107** (2011).
- Particle Flow Calorimetry and the PandoraPFA Algorithm, Thomson, M.A, NIMA **611** (2009).
- Measurement of the mass and width of the W boson, OPAL Collaboration, Eur. Phys. J. **C45** (2006).
- Precise determination of the Z resonance parameters at LEP, OPAL Collaboration, Eur. Phys. J. **C19** (2001).