University of Birmingham

Professor David Charlton FRS

Professor of Particle Physics, FRS

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About

Dave Charlton is Spokesperson of the ATLAS Collaboration at the Large Hadron Collider at CERN, a position he took up in early 2013. ATLAS is a global collaboration of some 3000 scientists. The Spokesperson is the scientific head of the collaboration. Prior to becoming Spokesperson, Dave was Deputy Spokesperson for four years, and before that Physics Coordinator of ATLAS in the run-up to the start of collision data-taking.

Dave's research is focused on experimental tests of the mechanism(s) of electroweak symmetry breaking mechanism: in 2012 ATLAS, with its sister experiment CMS, provided a breakthrough by discovering a new particle, the Higgs boson, which provides at least part of the answer to this puzzle: although in the process it throws up more questions.

Dave worked previously for more than a decade on the OPAL experiment at the LEP collider at CERN, and after that on the construction of detector and trigger systems of ATLAS.

Qualifications

- Fellow of the Institute of Physics, 2009
- Professor of Particle Physics, University of Birmingham, 2005
- PhD in Particle Physics, University of Birmingham, 1989
- BA (Hons, 1st class) in Physics, Oxford, 1985

Biography

Dave Charlton obtained his PhD on the UA1 experiment with the Birmingham team, searching for production of the top quark in proton-antiproton collisions on the CERN SppS collider. He then spent twelve years investigating a range of topics related to the physics of Z and W bosons at the CERN LEP collider with the OPAL Collaboration, first working for CERN then returning to Birmingham. During this time he was first Trigger, then Physics Coordinator of the international OPAL Collaboration of around 350 physicists.

After the year 2000, when LEP finally stopped, Dave led the construction in Birmingham of readout hybrid circuits of detector modules for the ATLAS particle tracking detectors, and then worked on the trigger systems, where he led the work of the six-institute (UK, Germany, Sweden) first-level calorimeter trigger collaboration. In 2007 he became Deputy Physics Coordinator of the entire ATLAS Collaboration, then Physics Coordinator in 2008. Between 2009 and 2013 he was Deputy Spokesperson of the Collaboration, including during the times of the Higgs boson discovery in 2012. Since early 2013 he has been Spokesperson of ATLAS.

Dave conceived and led a Y3 design group studies for several years, and also introduced and taught a Y4 module “Current Topics in Particle Physics”. While Spokesperson of ATLAS his lecturing is temporarily in abeyance, although he looks forward to returning to teaching in future.

Teaching

Currently in abeyance

Postgraduate supervision

Supervision of research PhDs on Particle Physics on the ATLAS experiment at the Large Hadron Collider.

Research

RESEARCH THEMES

- Electroweak symmetry breaking and other new physics searches in energy-frontier collisions at the LHC (ATLAS Collaboration)
- Trigger systems for particle physics experiments (ATLAS Collaboration, previously OPAL and UA1 Collaborations)
- Electroweak physics

Other activities

- FRS 2014

- Advisory committees of a range of international conferences Chair
- STFC/PPARC Particle Physics Grants Panel, 2004-2007
- PPARC/STFC Oversight committee for the LHC-b experiment, 2003-2009
- PPARC Projects Peer Review Panel, 2001-2
- PPARC Particle Physics Experiments Selection Panel, 1999-2001

Publications

Around 800 publications in total with the ATLAS, OPAL and UA1 Collaborations.

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