University of Birmingham

Professor Peter Jones BSc, PhD, CPhys, FInstP

Professor of Nuclear Physics

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About

Peter Jones is Professor of Nuclear Physics and a leading member of the Birmingham team that is involved in the ALICE experiment at the CERN Large Hadron Collider. His research is concerned with the properties of matter as it would have existed a fraction of a second after the Big Bang.

He has co-authored over 175 research papers in scientific journals in the field of ultra-relativistic heavy ion collisions. He is an enthusiastic science communicator and gives frequent talks to schools on topics related to his research and, in his capacity as the School's Careers Tutor, on the types of career open to physics graduates.

Qualifications

- Fellow of the Institute of Physics, 2011
- PhD in nuclear physics (ultra-relativistic heavy ion collisions), University of Birmingham, 1992
- BSc (Hons) in Physics, University of Birmingham, 1987

Biography

Peter Jones was awarded a PhD from the University of Birmingham in 1992 for his work on strange particle production in the one of the first heavy-ion experiments carried out at CERN. After completing his PhD he spent two years as a research fellow at the Lawrence Berkeley Laboratory in California, where he contributed to the conceptual design of a Time Projection Chamber for the STAR experiment at the Relativistic Heavy Ion Collider, then under construction at the Brookhaven National Laboratory near New York.

Upon his return to Birmingham in 1994 he played a leading role in one of the second generation of CERN experiments where his research focussed once again upon enhanced strange particle production as a possible signature the creation of a novel new state of matter: the quark-gluon plasma. In recognition of this work, he was awarded an EPSRC Advanced Fellowship in 1996, which allowed him to renew his involvement in STAR as the experiment prepared to take its first data.

As a leading member of the STAR collaboration he convened the experiment's Strangeness Physics Working Group (1996-2001), chaired its Talks Committee (2004-2007) and he served on the experiment's scientific Advisory Board. His many research contributions include studies of strange particle production and the measurement of hadrons at high transverse momentum, both of which probe the properties of the state of matter created under extreme conditions in these experiments. Since 2007 he has been a leading member of the Birmingham team involved with the ALICE experiment currently taking data at the CERN Large Hadron Collider.

Teaching

- Y2 Quantum Mechanics
- Y3 Nuclear Laboratory (in charge)
- Y3 Group Study in Medical Imaging
- Y3 Critiques
- Y3 Supervisions
- Y4 Project Supervisor
- MSc FORTRAN
- MSc Numerical Analysis

Postgraduate supervision

Supervision of research degrees in nuclear physics. Past students' topics include:

- Strange particle spectra in Pb-Pb collisions at CERN (1998)
- Strange particle production in Au-Au collisions at RHIC (2002)
- Strange particle production in p-p collisions at RHIC (2005)
- A study of jets at the STAR experiment at RHIC (2008)
- Neutral strange particle production in Cu-Cu collisions at RHIC (2008)
- Transverse spin asymmetries in neutral strange particle production (2009)

- A study of medium induced jet modification at RHIC (2010)
- Strangeness enhancement in high multiplicity proton-proton collisions at the LHC (2012)

PhD opportunities

Research

RESEARCH THEMES

- Jets in heavy ion collisions
- Strangeness production
- Relativistic heavy ion collisions

Other activities

- Member of the Science and Technology Facilities Council's ad hoc Accelerator R&D review panel (2011)
- Chairman of the Science and Technology Facilities Council's Project Peer Review Panel (2010-2011)
- Member of the Science and Technology Facilities Council's Project Peer Review Panel (2007-2011)
- Member of the Science and Technology Facilities Council's ad hoc Nuclear Physics Advisory Panel (2008)
- Member of the Institute of Physics' Nuclear Physics Group Committee (1995-2000 and 2004-2007)

Publications

Suppression of charged particle production at large transverse momentum in central Pb-Pb collisions at root s(NN)=2.76 TeV. K Aamodt et al., Phys Lett B 696 (2011) 30.

Centrality Dependence of the Charged-Particle Multiplicity Density at Midrapidity in Pb-Pb Collisions at root s(NN)=2.76 TeV, K Aamodt et al., Phys Rev Lett 106 (2011) 032301.

Elliptic Flow of Charged Particles in Pb-Pb Collisions at root s(NN)=2.76 TeV, K Aamodt et al., Phys Rev Lett 105 (2010) 252302.

Transverse momentum spectra of charged particles in proton-proton collisions at root s=900 GeV with ALICE at the LHC, K Aamodt et al., Phys Lett B 693 (2010) 53.

Parton energy loss in heavy-ion collisions via direct-photon and charged-particle azimuthal correlations, B I Abelev et al., Phys Rev C 82 (2010) 034909.

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