Curriculum Vitae

Personal Details

Name:	Dr Emily Laura Nurse
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Date of Birth:	January 3rd 1979
Place of Birth:	Edinburgh, U.K.

Education

2001 – 2005	University of Manchester, Ph.D. in High Energy Particle Physics.	Attended lecture courses in particle physics and undertook research on the D0 experiment (based at Fermilab).
1997 – 2001	University of Manchester, M.Phys. 1st Class Honours in Physics with Theoretical Physics.	Completed lecture courses in physics and mathematics, laboratory work and two M.Phys. projects.
1992 – 1997	Cherwell Comprehensive School (Oxford), nine GCSEs (seven A*, two A), four A-levels at grade A.	

Fellowships and awards

2005 – 2008	PPARC/STFC postdoctoral fellowship.
2004	John Rutherglen prize for outstanding Ph.D. work.
2001	Blackett prize for outstanding examination results, Manchester University.

Academic positions

2005 – 2008	PPARC/STFC postdoctoral fellow with University College London on the CDF experiment (based at Fermilab).

Work on the CDF experiment, at Fermilab (since 03/2005)

Physics analysis

I am involved in precision measurements of the W boson mass and width. I am a co-primary author of CDF's first Run II W width measurement which is the most precise in the world. Making such a precise measurement in a hadron collider environment requires an excellent understanding of detector and generator effects. This result has been shown at many international conferences and has been submitted to PRL. I am now actively involved in the next measurement of the W boson mass which is likely to surpass the LEP2 precision and dominate the world average.

Positions of responsibility

since 11/2006	**Trigger Operations Co-ordinator:** responsible for developing and testing the 'triggers' that select interesting events in real-time in the challenging environment of increasing instantaneous luminosity.
since 01/2006	**Co-convener of the W mass and width working group.**
since 03/2005	**Head of calorimeter software packages:** responsible for developing the CDF calorimeter reconstruction software.

In addition to this I undertook many data acquisition shifts.

Work with the CEDAR collaboration (since 03/2005)

I am a member of the CEDAR collaboration which provides an extensive archive of data from particle scattering experiments and validates/tunes Monte Carlo programs and other high-energy physics calculation programs. I have worked on including Tevatron data in the comparison facility as well as developing the user interface.

Work on the D0 experiment, at Fermilab (10/2001 – 02/2005)

My Ph.D. on the D0 experiment was joint experimental–theoretical high energy physics. My initial research was in the area of QCD phenomenology, where I compared data distributions of the W and Z bosons sensitive to initial state gluon bremsstrahlung with predictions from the Monte Carlo event generator, HERWIG. I studied the dependence of the predictions on the underlying assumptions and parameters and showed that it is possible to obtain a good description of the data.
In addition I was the primary author of the first measurement of the cross-section for $p\bar{p} \to Z \to \mu\mu$ at D0 during Run II of the Tevatron. This result was shown at numerous international conferences. Due to problems with the D0 luminosity measurement the result was not published; work is now on-going to update the analysis with an increased dataset.
I wrote a software package which is used as the definitive tool for muon efficiency measurements within D0. In addition to this I undertook many data acquisition shifts.

Other work and experience

01/2005	On the organising committee of the Young Experimentalists and Theorists Institute held at the Durham IPPP.
2002 – 2004	Attended three summer schools for particle physicists (RAL, JINR-CERN and CTEQ) where I presented my work as a poster or talk.
2001	Worked for the admissions of undergraduate physics students at the University of Manchester.
06/2000 – 09/2000	Work experience in the astrophysics department at the University of Oxford.

Conference talks and seminars

07/2007, **EPS Conference on High Energy Physics, Manchester**, "W properties at CDF".
07/2007, **Imperial College London Seminar**, "W boson Mass and Width Measurements at CDF".
03/2007, **Moriond QCD, La Thuile**, "W boson Mass and Width Measurements at the Tevatron".
03/2006, **University of Manchester Seminar**, "W mass and width at CDF".
10/2005, **TeV4LHC Workshop, Fermilab**, "The CEDAR project".
04/2005, **University College London Seminar**, "Electroweak physics at the Tevatron".
04/2005, **Liverpool University Seminar**, 'Electroweak physics at the Tevatron".
04/2004, **UK HEP forum, "From the Tevatron to the LHC", Coseners House Abingdon**, "Electroweak and top results from the Tevatron".
04/2004, **IOP, Birmingham University**, "Measurement of σ.Br for $p\bar{p} \to XZ \to X\mu^+\mu^-$ at $\sqrt{s} = 2$ TeV using the DØ detector".

Outreach talks

04/2005, **University College London Work Experience Talks**, "Unanswered questions in Particle Physics".
04/2005, **Manchester University A-level Masterclass**, "Exploring the World of the Small".
11/2003, **Manchester University A-level Masterclass**, "Particle Accelerators".