WILLIAM FAWCETT

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EDUCATION AND AWARDS

D.Phil (Ph.D) in Particle Physics. University of Oxford, Pembroke College *2013–Present*
- Thesis title: "Phenomenological studies of supersymmetry and searches for the gluino"
- Supervisor: Prof. Alan Barr
- Awarded Pembroke College Collingwood Prize for academic achievement (2016)
- Granted Senior Studentship, awarded to top 2% of students at Pembroke College (2016)
- Runner up for Perkins Prize for the best 1st year Ph.D student in Particle Physics (2014)

M.Phys(Hons) in Physics, 1st class. University of Manchester *2009–2013*
- Thesis title: "Searching for matter-antimatter differences in charm meson decays"
- Supervisor: Prof. Chris Parkes
- Awarded Platt Prize for the best Master's project and thesis (2013)
- University commendation for finishing in the top 5% of undergraduates (2013)
- Achievement scholarship (awarded annually) for consistent 1st class results (2009-13)

EXPERIENCE

Experimental Particle Physicist Oct. 2013 – Present
University of Oxford & European Organization for Nuclear Research (CERN) *Oxford & Geneva*

· Lead an international team of 9 Ph.D students & post-docs in searches for new fundamental particles.
· Organised and chaired meetings, coordinated group work, delegated tasks and supervised junior students.
· Performed statistical analysis of data from the Large Hadron Collider (LHC).
· Operated the ATLAS detector during control room shifts (Inner Detector and Run Control).
· Published 3 scientific papers, 1 conference note and 3 conference proceedings to communicate my results to the academic community.
· Presented my work at international conferences in the form of talks and posters.

Rutherford Appleton Laboratory July–Sept. 2012
Summer student *Oxfordshire, UK*

· Analysis of LHC data to search for differences between matter and anti-matter.
· Experimented with machine learning techniques such as Boosted Decision Trees to optimise the sensitivity of an existing search, improving the performance by 17%.

TECHNICAL STRENGTHS

Computer Languages	C/C++, Python, Bash
Machine Learning	Boosted Decision Trees, Artificial Neural Networks
Operating Systems	Linux/Unix, Windows, Apple OSX
Tools	SVN, Git, Vim, Emacs
Other	LaTeX, Matlab, HTML (beginner), Javascript (beginner)

LEADERSHIP

President of the Middle Common Room 2015–2016
Pembroke College, University of Oxford

- Elected president. Responsible for management and running of the MCR committee, day-to-day operation of the MCR and special events such as a banquet for 150 people.
- Negotiated £3,000 to be given to graduate students to support trips to conferences and schools.
- Established a mentoring scheme for graduates to assist undergraduates, grew to 40 grad-undergrad pairs.
- Member of Pembroke College Governing Body, Finance and Planning Committee, Academic Committee, Operations Committee, and Student Development Committee.

Junior Under Officer 2009-2012
British Army, Manchester and Salford Universities Officer Training Corps

- Taught military skills including teamwork, communication, leadership and time management.
- Lead teams of officer cadets in field training and arduous battle exercises.

JOURNAL PUBLICATIONS

ATLAS Collaboration (**W. J. Fawcett**, lead author) "Search for new phenomena with large jet multiplicities and missing transverse momentum using large-radius jets and flavour-tagging at ATLAS in 13 TeV pp collisions", (preprint: ATLAS-CONF-2017-033) in preparation.

ATLAS Collaboration (**W. J. Fawcett**, editor) "Search for new phenomena in final states with large jet multiplicities and missing transverse momentum with ATLAS using $\sqrt{s} = 13\,\text{TeV}$ proton-proton collisions", Phys. Lett. B. 757 (2016).
Was the first supersymmetry search paper to be published from the LHC with $\sqrt{s} = 13\,TeV$ data.

ATLAS Collaboration (**W. J. Fawcett**, editor) "Summary of the ATLAS experiment's sensitivity to supersymmetry after LHC Run 1 – interpreted in the phenomenological MSSM", JHEP 10 (2015) 134.
The most comprehensive analysis of Run-1 Supersymmetry searches. Selected by the ATLAS Collaboration as a "Physics highlight". Selected by Oxford University as a "Physics highlight". Featured on Résonaances blog and in the CERN courier (Nov. 2015). Inspired several spin-off papers.

CONFERENCE NOTES AND PROCEEDINGS

ATLAS Collaboration (**W. J. Fawcett**, lead author) "*Pursuit of new phenomena in final states with high jet multiplicity, high jet masses and missing transverse momentum with ATLAS at $\sqrt{s} = 13\,TeV$*", ATLAS-CONF-2016-095.

ATLAS Collaboration (**W. J. Fawcett**, editor) "*Constraints on promptly decaying supersymmetric particles with lepton-number- and R-parity-violating interactions using Run-1 ATLAS data*" ATLAS-CONF-2015-018

W. J. Fawcett, "*pMSSM studies with ATLAS and CMS*", PoS (LHCP2016) 146.
Presented on behalf of the ATLAS and CMS collaborations.

W. J. Fawcett, "*Summary of SUSY constraints from ATLAS using the phenomenological MSSM*", PoS (LP2015) 081.
Presented on behalf of the ATLAS collaboration.

W. J. Fawcett and S. Chen, "*Can LHCb Study Three Body Decays with Neutrals?*", arXiv:1312.0023.
Presented on behalf of the LHCb collaboration.

INVITED SEMINARS AND CONFERENCE PRESENTATIONS

Talk: "pMSSM studies with ATLAS and CMS", Large Hadron Collider Physics Conference, Lund University, Sweden. *June 2016.*

Talk: "Searching for SUSY", Joint annual High Energy Particle Physics Conference, University of Sussex, UK. *March 2016.*

Talk & poster: "Searches for strongly produced supersymmetry", ATLAS UK, University of Sheffield, UK. *January 2016.* Won poster prize.

Poster: "Summary of SUSY constraints from ATLAS using the pMSSM", International Symposium on Lepton Photon Interactions at High Energies. University of Ljubljana, Slovenia *August 2015.*

Poster: "Impact of ATLAS on the pMSSM", ATLAS UK, University of Sussex, UK. *January 2015.*

Poster: "The hunt for supersymmetry", High Energy Physics summer school, University of Warwick, UK. *September 2014*

Poster: "Can LHCb find 3-body decays with neutrals?", International Workshop on Charm Physics, University of Manchester, UK. *September 2013.*

TEACHING

University of Oxford

- Tutor for third-year undergraduate class on subatomic physics, lead tutorial classes, marked work. *2017*
- Mentor for undergraduate physicist, provided academic support e.g. lab report writing. *2016-17*
- Teaching assistant for 4th year undergraduate particle physics course. *2016*

University of Manchester

- Mentor for a group of undergraduate physicists, lead the group in a small research project. *2010*

INTERNATIONAL SCHOOLS

11th Hadron Collider Physics Summer School, Fermilab, Chicago, USA. *2016*
Terascale statistics School, DESY, Hamburg, Germany. Received specialist training in statistical analysis for particle physics. *2016*
STFC High Energy Physics Summer School, University of Warwick, UK. *2014*

OTHER POSITIONS

Particle Physics representative on departmental graduate liaison committee (Oxford) *2015-17*
Oxford University Student's Union (OUSU) representative for Particle Physics *2015-17*
IT officer for Pembroke College MCR, (Oxford) maintained the website *2015*

OUTREACH

Authored public engagement article "Where has all the antimatter gone?", published in issue 16 of Bang! science magazine *2014*
Educated the public about the Higgs boson at the Big Bang fair, Birmingham *2014*
Mentored A-level students at the particle physics masterclass, University of Oxford *2014*
Volunteer at the Stargazing Live festival, University of Oxford *2014*

SPORTING

Represented Oxford at the 60^{th} Modern Pentathlon Varsity Match, awarded university colours. *2017*
Throughout my university years I have been a member of several sports teams and societies, including: Swimming, Skydiving, Taekwondo, Fencing, Powerlifting and Modern Pentathlon.

OTHER QUALIFICATIONS

- CMI Level 5 award in management and team leadership
- ILM certificate in team leading (distinction)
- BTEC First diploma in public services (distinction)
- Duke of Edinburgh gold award
- UK driving licence

REFERENCES

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