ADAM JAMES BARKER

PERSONAL INFORMATION

email	ajbarker93@gmail.com
phone	(M) +44 7853 176126
date of birth	1 September 1993

WORK EXPERIENCE

College de France

Feb–Apr 2018: Invited Researcher, College de France

Implemented new optics to improve efficiency of a stage of atomic cooling, resulting in a factor-of-5 increase in performance. Experimental results are now published in a high-impact journal.
Reference: Prof. Jean Dalibard · jean.dalibard@lkb.ens.fr

CBL International

Jun–Aug 2016: Programme Director, CBL International Programmes

Ran an 8-week educational summer school at the University of Cambridge for 14-18 year olds. Responsibilities included the organisation of the academic timetable and excursions, along with the daily routine of 150 students.
Reference: Xiaoying Luo · xiaoyingl@worldstrides.org

University of Cambridge

Jul 2015–Jun 2016 Research Intern and Student, Physics Department, University of Cambridge

Internship in Prof. Hadzibabic's group, University of Cambridge with responsibilities including the design and construction of a Bragg diffraction apparatus, producing experimental results published in a high-impact journal.
Reference: Prof. Zoran Hadzibabic zh10001@cam.ac.uk

KPMG

Jul–Aug 2014 Intern, KPMG Strategy Group

6-week consulting internship at KPMG Strategy Group. I conducted quantitative analysis for a national broadcaster and an international tour operator as well as preparing final client reports.
Reference: Chris Woodland chris.woodland@kpmg.co.uk

HSBC

Jul–Aug 2013 Intern, HSBC Wealth Management

7-week internship with the Wealth Management programme. Performed quantitative analysis into the performance of retail bank branches, following a management campaign, and a managed portfolio.
Reference: David Ferguson-Rhoades david.e.ferguson-rhoades@hsbc.com

TEACHING EXPERIENCE

Lecturer in Physics

Sep 2018 - present Stipendiary Lecturer in Physics,
Magdalen College & St Peter's College, University of Oxford

Tutored 1^{st} and 2^{nd} year mathematics, electromagnetism and statistics courses. Led development and delivery of physics access course for students from under-represented backgrounds. Interviewed >75 prospective undergraduates and assisted with admissions process.
Reference: Prof. Zhong You · zhong.you@magd.ox.ac.uk

EDUCATION

DPhil in Atomic and Laser Physics

2016-2019 University of Oxford, United Kingdom

Member of Magdalen College. Working thesis title: *Investigating Non-Equilibrium Dynamics and Universality using Two-Dimensional Quantum Gases*
Supervisor: Prof. Christopher Foot, Advisor: Prof. John Gregg

MSci and BA in Natural Sciences

2012-2016 University of Cambridge, United Kingdom

First Class · Member of Pembroke College. Specialising in Experimental and Theoretical Physics.

A-Levels

2007-2012 Ponteland High School, United Kingdom

Mathematics A* · Further Maths A* · Extended Project A* · Physics A* · Chemistry A

PUBLICATIONS

Applying machine learning methods to the optimization of a quantum gas experiment, in preparation

Inelastic collisions in radiofrequency-dressed mixtures, in preparation

Probing multiple-frequency atom-photon interactions with ultracold atoms, New J. Phys. 21 073067 (2019)

Anisotropic light-shift and magic-polarization of the intercombination line of Dysprosium atoms in a far-detuned dipole trap, Phys. Rev. A 98, 040502(R) (2018)

Ultracold atoms in multiple radio-frequency adiabatic potentials, Phys. Rev. A 97, 013616 (2018)

Quasiparticle energy in a strongly-interacting homogeneous Bose-Einstein condensate, Phys. Rev. Lett. 118, 210401 (2017)

Species-selective confinement of atoms dressed with multiple radiofrequencies, J. Phys. B: At. Mol. Opt. Phys. 50, 094002 (2017)

Quantum Technologies for Precision Measurements, BlueSci, Michaelmas 2018 edition

Computing's Quantum Leap, BlueSci, Michaelmas 2016 edition

COMPUTER SKILLS

Intermediate MATHEMATICA, Linux, ThinkCell, C++, TensorFlow, Pandas

Advanced LaTeX, MATLAB, MS Office, PYTHON

Other Courses Introduction to Machine Learning, Neural Networks for Machine Learning, Python for Data Science

Github github.com/ajbarker93

OTHER ROLES

OU Golf Club, Junior Treasurer (2018-19): Organisation of finances, accounts and budget

Pembroke College 1347 Committee, President (2015-16): Alumni relations, fundraising and development committee

CU Golf Club, Junior Treasurer (2013-14, 2014-15): Organisation of finances, accounts and budget

OTHER INFORMATION

Awards and Prizes

2015, 2016 · Pembroke College Scholar
2015, 2016 · Peter May Sports Prize Winner
2015, 2016, 2017, 2019 · Full Blue, Golf
2016 · EPSRC Doctoral Training Scholarship
2016 · STFC PhD Scholarship (declined)
2011 · Guitar - Grade 8, Piano - Grade 8
2011 · CREST Award - Gold
2010 · Bar National Mock Trial Regional Winner

Conference Proceedings

2019 · Invited seminar talk, Oxford University
2018 · Poster presentation at Frontiers of Matter-Wave Optics, Crete, Greece
2018 · Invited seminar talk, Newcastle University
2017 · Poster presentation at Engineering Quantum Systems, Austria
2017 · Poster presentation at Frontiers of 2D Quantum Systems, Italy

Languages

ENGLISH	· Native
FRENCH	· Intermediate (conversational)
CHINESE (MANDARIN)	· Very Basic (simple words and phrases only)

Interests

Golf (hcp 4) · Cycling (850-mile charity ride in 2012) · Running (Great North Run 2012, 2013 and 2016) · Rugby Union (College 1^{st} XV) · Magdalen College 1^{st} XIII Rowing · Ironman 70.3 Weymouth · OUBC Squad 2019-2020