

Alex Hubert, PhD

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EDUCATION

Physicist - PhD

University of Warwick

August 2014 – July 2019

Coventry, UK

- By using computer control of a JEOL 2100 electron microscope and *felix*, an in-house Bloch wave simulation software, I showed it was possible to obtain highly accurate and precise structural refinement measurements using the Digital-Large Angle Convergent Beam Electron Diffraction technique

MPHYS Physics

University of Kent

September 2010 – July 2014

Canterbury, UK

EXPERIENCE

Volunteer researcher

CPRE

Ongoing

remote

- Researching affordable housing in rural areas

Public Speaker

University of Warwick

March 2019

Coventry, UK

- Wrote, organised and performed an independent talk on my experiences of counselling
- Working with the university, I promoted the talk using posters and a trailer. I advertised on public displays around campus and through social media.

Wellbeing and Peer Support officer (PGSSLC - PostGraduate Student Staff Liason Committee)

University of Warwick

March 2018 – May 2018

Coventry, UK

- Set up the postgraduate wellbeing peer support group for physics PhD students. The first of its kind to be set up within a Warwick University department (to my knowledge)

Social Secretary - Mind Aware Society

University of Warwick

May 2017 – September 2017

Coventry, UK

ACHIEVEMENTS AND QUALIFICATIONS



3MT

University wide three minute thesis finalist 2019



Front cover

My paper "Structural refinement from 'digital' large angle convergent beam electron diffraction patterns" made the front cover of *Ultramicroscopy magazine - volume 198*.



HPC autumn academy

2 week (full time) introductory course in high performance computing (parallel programming) using C



HPC MPAGS

4th year module (10 weeks) at the University of Warwick in High performance computing as part of the midlands alliance PhD courses



PCG summer school

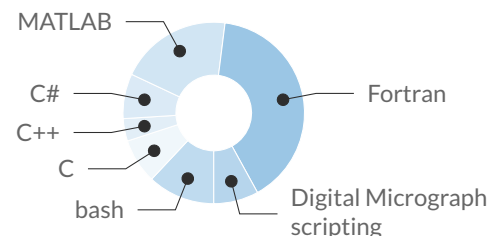
1 week (full time) course on physical crystallography



ECB level 1

2-day cricket coaching course

PROGRAMMING LANGUAGES



**I also have experience using Python and Parallel programming implementations (MPI/OpenMP)*

SOFTWARE



felix

Bloch wave simulation software



CrystalViewer_VR

Creates models of crystal structures in virtual reality (unfinished)

EXPERIENCE (CONT.)

Undergraduate Laboratory Demonstrator

University of Warwick

October 2014 – March 2017

Coventry

Women's Head Coach and Second Team Captain (cricket club)

University of Kent

July 2013 - May 2014

Canterbury, UK

- I helped drive membership up to the highest it had been since I started my undergraduate. I was also influential in helping to stabilise the women's team after it nearly collapsed due to previously declining membership.
- Achieved through: stalls on campus, engaging with first year students at freshers fayre - selling them the idea of cricket, using an energetic/uplifting coaching style and a willingness to give time to each member for any concerns.
- I led a team effectively through a shared philosophy. I created a trustworthy, passionate and close-knit group.

SKILLS

Research in science

I know how to find and parse relevant research papers. I can decipher trustworthy and non-trustworthy sources. I am able to analyse, interpret and visualise complex datasets, and communicate them simply and effectively.

From experimental data to computer science

During my PhD, I personally collected experimental data and helped transcribe mathematical theory from research papers into algorithms, then fully working code. I ran the resulting refinement software on a supercomputer and analysed the results. This process culminated in my first-authored research paper.

Writing

I have written many articles about mental health, including several high-profile anonymous pieces (sources available on request)

Emotional intelligence

Through counselling, acting, meditation and further wellbeing practices over the past decade, I have developed an emotional skill-set which has enhanced the majority of my technical abilities and interpersonal communication

FINANCIAL AWARDS

Cr Barber Trust - Institute of physics travel grant

- awarded £300 for travel expenses to attend the **IMC19** conference in Sydney

Research Student Conference Fund - Institute of physics travel grant

- awarded £300 by the electron microscopy and analysis group for travel expenses to attend the **IMC19** conference in Sydney

ARCHER

- Contributor for the project: Bloch-Wave Simulations for digital large angle convergent beam electron diffraction, number: e370. For the ARCHER supercomputer. Award: £20,798.90

FURTHER SKILLS

Public Speaking

Acting*

Article Writing

LaTeX

modelling

mathematics

algorithm creation

meditation

operate transmission electron microscope

Driving licence (14+ years)

*classes taken at **Teatro theatre school**

CLUBS AND SOCIETIES

Chearsley cricket club

University of Kent cricket club

University of Warwick mind aware society

Birmingham city Korfbal club

University of Warwick Korfbal club

ACTIVITIES AND INTERESTS

Cricket

Korfbal

Football

Tennis

Squash

Origami

Reading

Psychology

Philosophy

Dancing

PUBLICATIONS

Thesis

- A.J.M. Hubert (2019). *Structural refinement of single crystals using digital-large angle convergent beam electron diffraction patterns*. University of Warwick.

Journal Articles

- R. Beanland, ..., A.J.M. Hubert, K. Evans et al. (2021). "A new electron diffraction approach for structure refinement applied to Ca₃Mn₂O₇". In: *Acta Crystallographica Section A: Foundations and Advances* 77.3, pp. 196–207.
- A.J.M. Hubert, R. Römer, R. Beanland (2019). "Structure refinement from 'digital' large angle convergent beam electron diffraction patterns". In: *Ultramicroscopy* 198, pp. 1–9.
- J.L. Hart, ..., A.J.M. Hubert, ..., R. Beanland et al. (2016). "Electron-beam-induced ferroelectric domain behavior in the transmission electron microscope: Toward deterministic domain patterning". In: *Physical Review B* 94.17, p. 174104.

POSTER PRESENTATIONS

Conference Proceedings

- A.J.M. Hubert, R. Beanland, R. Römer (2018). "Isotropic Debye-Waller factor measurements for Cu, SrTiO₃ and GaAs using digital electron diffraction". In: International Convention Centre, Sydney: 19th International Microscopy Congress.
- A.J.M. Hubert, R. Römer, R. Beanland (2018). "Isotropic Debye-Waller factor measurements for Cu, SrTiO₃ and GaAs using digital electron diffraction". In: Abingdon, UK: Physical crystallography group summer school.
- A.J.M. Hubert, K. Evans et al. (2015). "Felix: open source Bloch wave simulation and refinement software". In: Manchester, UK: Microscience Microscopy Congress.

ARTICLES

How I found space to meditate in academia

- [Science Magazine](#)

Scientific discovery under Nazi Rule – The curious case of Walther Kossel and Gottfried Möllenstedt

- [Science Comma blog - University of Kent](#)

In search of more time

- [PhD Life blog - University of Warwick](#)

Counselling as an education

- [Mental Movement magazine](#)

ORAL PRESENTATIONS

Measuring crystal structures using computer controlled electron diffraction

 June 2019

Warwick Three Minute Thesis final presentation

Seeking Counsel

 February & March 2018

For Warwick Mind Aware Society and Independent

Isotropic Debye-Waller factor measurements for Cu, SrTiO₃ and GaAs using digital electron diffraction

 March 2018

Conference presentation given at the annual British Crystallographic Spring Meeting

Probing the shape of atoms with digital electron diffraction

 March 2018


Scientific presentation given at the Warwick postgraduate seminar series

Meditation: The key to life's game of snakes and ladders

 December 2017 & February 2018

Personal presentation given at the Warwick postgraduate seminar series and undergraduate physics cafe series

Simulating pretty pictures: A Bloch wave solution

 January 2015

Scientific presentation given at the Warwick postgraduate seminar series