

Adam R. Symington

PHD RESEARCHER · PROGRAMMER · EDUCATOR · DATA SCIENTIST

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Education

PhD - Chemistry

Bath, England

UNIVERSITY OF BATH

October 2016 - March 2020

- Undertaking a PhD in computational chemistry / materials science, supervised by Prof. Stephen C. Parker
- Collaborative project funded by AWE and the University of Bath
- Research collaboration with the University of Huddersfield, University of Kent and the University of Central Florida

MChem - Chemistry with Drug Discovery

Bath, England

UNIVERSITY OF BATH

October 2012 - June 2016

- Degree Classification: II:1
- Masters project - Cerium Oxide Nanozymes - A computational study

Research Experience

Postgraduate Research, Computational Chemistry (Prof Stephen C. Parker)

Bath, England

PHD PROJECT: "THE EFFECT OF MICROSTRUCTURE AND IMPURITIES ON TRANSPORT IN ACTINIDE OXIDE FILMS"

October 2016 - March 2019

- One strand of this project involves using molecular dynamics simulation techniques have been used to determine how extended crystal defects (Grain Boundaries) and Fission products affect the corrosion of nuclear fuel
- The second strand involves using DFT simulations to model the interaction between Cerium oxide surfaces and water/carbonate molecules.
- **Project Applications** - Nuclear Energy, Catalysis, Fuel Cells, Biomedicine, Environmental

Undergraduate Research, Computational Chemistry (Prof Stephen C. Parker)

Bath, England

MASTERS RESEARCH PROJECT: "CERIUM OXIDE NANOZYMES - A COMPUTATIONAL STUDY"

October 2015 - June 2016

- Cerium Oxide Nanozymes. This project focussed on using computational techniques, specifically DFT simulations to model the interaction between cerium oxide surfaces and phosphate anions.
- This one year project has led to a publication.

Collaborative Computational Projects 5 (CCP5) Summer Studentship

Bath, England

SUMMER STUDENTSHIP

June 2015 - October 2015

- Heavy metal remediation - This project focussed on using naturally occurring clay based materials to trap and remove heavy metal contaminants from the environment. At the end of the 4 month studentship this work was presented at the CCP5 AGM in Loughborough.

Teaching Experience

University of Bath Chemistry Department

Bath, England

POSTGRADUATE TEACHING ASSISTANT

October 2016 - Present

- Helped first and second year chemistry undergraduates as they undertake laboratory exercises, with a focus on programming in python.
- Developed a new masters level course focusing on using python programming to understand complex physical chemistry concepts.
- Helped teach high level programming to final year chemistry students.

MATHS FOR CHEMISTS LECTURER

October 2016 - Present

- Delivery of workshops in fundamental mathematical concepts for chemists, ensuring that all chemistry first year students had consistent mathematical background.

Skills

Programming

LANGUAGE PROFICIENCY

Basic - Ruby, SQL, HTML/CSS

Intermediate - Python, Fortran90, Shell

Software Development - Github/symmy596

Writing

PUBLICATIONS

- M. Molinari, **A. Symington**; D. Sayle, T. Sakthivel, S. Seal, S. Parker. *Computer-Aided Design of Nanoceria as an Enzyme Mimetic Agent; a Prescription to Maximise its Activity* - Submitted Nano Letters
- J. Flitcroft, **A. Symington**, M. Molinari, N. Brincat, and S. Parker. *A Stable Oxygen Defect Cluster in Uranium Oxide at low Excess Oxygen Concentration from ab initio Calculations* - Submitted JPCC
- **A. Symington**, N.Brincat, N.Williams, M.Molinari, S.Parker. *Fission Products and Oxygen Vacancy Segregation Facilitate Oxygen Transport at UO₂ Grain Boundaries* - In preparation
- **A. Symington**, M.Molinari, S.Parker. *Carbonate Formation at Low Index Cerium Oxide Surfaces* - In preparation
- **A. Symington**, J.Flitcroft, M.Molinari, S.Parker. *Water Adsorption at Cerium Oxide Surfaces Altered by Trivalent Dopants* - In preparation

Project Management

PHD PROJECT MANAGEMENT

- I have had to manage both short term and long term deadlines throughout the three years of my PhD.
- I have engaged in multiple collaborations both domestically and internationally
- I have shown strong independent learning skills throughout my PhD.

MASTERS STUDENT SUPERVISION

- During my time with the Parker research group I have supervised 3 masters students.

Awards

INTERNATIONAL

2018 **Winner**, Materials Science and Metallurgy Award - Plutonium Futures the Sciences 2018

San Diego, USA

DOMESTIC

2018 **Winner**, Computational Chemistry Prize - Bolland Symposium

Bath, England

2017 **Winner**, Material Horizons Award - Solid State Chemistry Group

Reading, England

2017 **Runner Up**, Computational Collaborative Project 5 AGM - Presentation Award

Glasgow, Scotland

Committees and Organisations

Chemistry Postgraduate Exec Committee

Bath, England

SECRETARY

2017/18

- Committee responsible for organising events within the chemistry department
- Organised the annual Bolland symposium.
- Responsible for organising external speakers and securing funding.

University of Bath Cricket Club

Bath, England

SECRETARY

2013/14

- Committee responsible for organising games, training and social events.

Extracurricular Activity

Senior Golf Caddy

Newcastle, N.I

ROYAL COUNTRY DOWN GOLF CLUB

June 2009 - October 2016

- Annual summer job during my high school and university career.
- This job involved quickly building a strong working relationship with a foreign visitor in order to provide advice and knowledge on the course.
- I have also been a playing member of the club from 2012 - Present and I play to a handicap of 16

Cricket Player / Coach

Newcastle / Bath

DUNDUM CC | UNIVERSITY OF BATH CC | ROYAL OAK CC | SOUTHSTOKE CC

2000 - PRESENT

- I have played cricket as a member of several clubs since the age of 8.
- I played at Dundrum CC between the ages of 12 -24 and captained the first XI during the 2014-2016 seasons.
- I coached the U15/U13/U11 teams at Dundrum for 6 years.

Cycling

I am a keen cyclist in my spare time and in 2018 I participated in a charity cycle between Lands end and Bristol, raising £4000 for the MS society.