

Jack Wilson

PhD Student in Nuclear Science and Engineering

Curriculum Vitae
August 2021

📍 Nuclear Futures Institute, Bangor University
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Overview

➤ Nuclear Engineering and Science PhD researcher with several years of broad practical experience in chemistry, materials science, metallurgy, and computational modelling.

Education

2019-present	PhD in Nuclear Science and Engineering Advanced Alloy Development for Accident Tolerant Fuels Centre for Doctoral Training: Bangor University; Bristol University; Cambridge University; Imperial University; and The Open University Modules include: Nuclear Safety Management, Reactor Design and Operation, Responsible Research and Innovation, Materials for Reactor Design, Policy and Nuclear Regulation.	Bangor University Nuclear Energy Futures EPSRC CDT
2019	Masters in Chemistry (First-Class with Honours) Structure and Reactivity (83%), Core Organic Chem concepts (89%), Chemical Biology (86%), Core Phys Chem Concepts (100%), Advanced Phys Chem (80%). Final Project title: Synthesis of Novel Manganese (III) Catalysts and their Application Towards Classic Organic Oxidation Transformations.	Bangor University
2015	A Levels: Chemistry A, Maths B, Biology C - AS Psychology B	Birmingham Metropolitan College
2013	GCSEs: 9 GCSEs A*-B, including English, Maths, and Sciences	Beamont Collegiate Academy

Research Projects

2019	Biochemical studies of oxygen-sensing mechanisms in algae and early land plants UNIQ+ internship: Interdisciplinary Bioscience Doctoral Training Partnership under Dr. Emily Flashman. Thermal shift assays, RapidFire-Q-ToF LC/MS, nanoDSF, XRD crystallography.	University of Oxford
2019	Organometallic Catalysis Synthesis of Manganese (III) catalysts. Application towards classic epoxidation and sulfoxidation reactions. Single crystal and powder X-ray diffraction, NMR spectroscopy, IR spectroscopy, Mass spectrometry and Column Chromatography. Publication pending.	Bangor University
2018	Organic Asymmetric Catalysis Synthesis of novel L-proline derived chiral catalysts. Application towards conjugate addition reactions. NMR, FTIR, Alpha D / optical rotation, Mass Spectrometry, Column Chromatography, HPLC. Publication Sep 2019: "Proline derived Guanidine catalysts forge extensive H-bonded architectures: A solution and solid-state study".	Bangor University

Employment

2018/2019	Laboratory Technician Producing small- and large-scale (500 mL – 12 L) formulations of magneto-rheological fluids and ferrofluids. Advising direction of an R&D project following ISO standards in recording and presenting data and in compliance with NDAs. Vibrating-sample magnetometry, UV spectroscopy, Rheometry, Viscometry, non-Newtonian (Thixotropic) fluids. Contract extended well beyond original end-date based on quality of practical work.	Liquids Research Ltd., Bangor
2018	Laboratory Technician Awarded internship in natural product isolation. Isolating, identifying, and purifying natural alkaloids from the Narcissus genus of daffodil. Column chromatography, NMR spectroscopy.	School of Chemistry, Bangor University

Professional qualifications and awards

Fire Awareness Training
Emergency Life Support
Health and Safety at work
Chemical Safety in the Laboratory
Control of Substances Hazardous to Health (COSHH)
Welsh Language Skills Certificate (Chemistry).
 with Distinction
Affiliate member of the Royal Society of Chemistry
Bangor Employability Gold Award
 BEA-200

Professional interests and skills

2021	R for data science Manipulating data, statistical modelling, functional programming, and advanced graphics in R. Full and clean driving licence Microsoft Office Suite Including Excel and Access, familiar with data functions (e.g. pivot tables) and working with relational databases Welsh language equivalent to level B2 in the Common European Framework of Reference for Languages (CEFR).	Jumping Rivers RSS Accredited
2019	Programming Principles and Practice using Python Fundamental programming concepts and best practice	Bangor Doctoral school
2019	Advanced Python Exceptions; libraries; documentation and unit testing; mapping and filtering; lambda functions; additional tools	Bangor Doctoral school
2019	Introduction to the Linux Shell Navigating file structures; working with files and directories; standard out, standard error and pipes; loops; conditions; re-use though scripts; substantial experience with bash	Bangor Doctoral school