Euan Bassey

Post-Doctoral Research Fellow

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Research & Teaching Experience

CENTRE DE RMN À TRÈS HAUTS CHAMPS DE LYON | Marie Skłodowska-Curie Fellow

March 2025 – Present | Lyon, France

- Affiliated with the research groups of Profs. Andrew Pell and Guido Pintacuda
- Development of novel experimental and theoretical methods for the acquisition and assignment of nuclear magnetic resonance (NMR) spectra, using **broadband NMR and cluster expansion techniques**.

UNIVERSITY OF CALIFORNIA, SANTA BARBARA | Post-Doctoral Researcher

November 2022 – March 2025 | Santa Barbara, U.S.

- Affiliated with the research groups of Profs. Anton Van der Ven and Raphaële Clément
- Theoretical and experimental characterisation of Li- and Na-ion battery cathodes using **operando magnetometry, NMR and electron paramagnetic resonance (EPR) spectroscopies**; development of new statistical mechanics cluster expansion techniques for the prediction of materials' magnetic properties
- Development of CASM software
- Collaborations with **multiple national and international institutions**: Diamond Light Source; Institut Laue-Langevin and MagLab
- Prepared and delivered lectures to undergraduates (Materials Science for Non-Science Majors) and graduates (Quantum Mechanics, Statistical Mechanics); held corresponding office hours

UNIVERSITY OF CAMBRIDGE | Post-Doctoral Researcher

July 2022 – November 2022 | Cambridge, U.K.

- Affiliated with the research group of Prof. Dame Clare Grey and Faraday Institution NEXGENNA team
- Experimental and theoretical studies of Na-ion cathode materials, focusing on magnetic resonance techniques: NMR, EPR and magnetic property measurements

UNIVERSITY OF CAMBRIDGE | Undergraduate Supervisor

October 2019 – November 2022 | Cambridge, U.K.

- Designed, supervised and mentored Masters student projects, including teaching NMR, EPR, DFT, diffraction and how to analyse and present data
- Small-group teaching of first-year undergraduate chemistry courses (organic, physical and inorganic chemistry)
- Practical laboratory class demonstrator for first and second-year undergraduate chemistry classes (organic, physical and inorganic chemistry)

Talks & Conferences

SEPTEMBER 2024:

Presented a poster at the Ab initio Modelling in Solid State Chemistry workshop, held at Imperial College London ("A Paramagnetic NMR Cluster Expansion Toolkit for Li-ion Battery Cathodes").

Education

UNIVERSITY OF CAMBRIDGE

PhD in Chemistry

Oct 2018 - Jul 2022 | Cambridge, U.K.

Yusuf Hamied Department of Chemistry

Pass, no corrections

UNIVERSITY OF CAMBRIDGE

MA (Cantab), MSci in Natural Sciences

Oct 2014 - Jun 2018 | Cambridge, U.K.

Yusuf Hamied Department of Chemistry

Class I (5/60)

Skills

PROGRAMMING

Experienced:

Python • LaTeX • MATLAB • Linux

Proficient:

C++ • CSS • HTML • Fortran

LANGUAGES

Fluent/Experienced:

English • German (B1/B2)

Proficient:

French • Italian

Referees

Professor Dame Clare P. Grey FRS, Geoffrey Moorhouse Gibson Professor of Chemistry, University of Cambridge ✉ cpg27@cam.ac.uk

Professor Raphaële Clément, Associate Professor of Materials, University of California, Santa Barbara ✉ rclement@ucsb.edu

Professor Anton Van der Ven, Professor of Materials, University of California, Santa Barbara ✉ avdv@ucsb.edu

Professor Andrew J. Pell, Professor of Chemistry, École Normale Supérieure de Lyon & Centre de RMN á Très Hauts Champs de Lyon ✉ andrew.pell@ens-lyon.fr

APRIL 2024:

Invited talk to the CRMN: "Constructing a Paramagnetic NMR Cluster Expansion Toolkit"

DECEMBER 2023:

Invited talk at the NMR Seminar Series (Department of Chemistry, University of Cambridge), "Introduction to Phase Cycling and Pulse Programming"

NOVEMBER 2023:

Materials Research Society Fall Meeting: presented two posters ("Strain-Magnetism coupled cluster expansion in NaMnO2"; "A Paramagnetic NMR Cluster Expansion Toolkit for Li-ion Battery Cathodes") and one talk ("Characterisation of Strongly Paramagnetic Cathodes using EPR and DFT")

MAY 2023:

Invited talk at the Collaborative Computational Project for NMR Crystallography webinar on DFT calculations for paramagnetic NMR: "Assigning NMR Spectra of Strongly Paramagnetic Materials"

MARCH 2023:

Royal Society of Chemistry JEOL Medal Session: presented characterisation of strongly paramagnetic Li-ion battery cathodes using multi-frequency, variable-temperature EPR combined with DFT calculations: "Characterizing Paramagnetic Battery Cathodes with EPR and DFT"

FEBRUARY 2023:

Invited talk at the International Virtual EPR Meeting: "Eyes to the Spin: Characterizing Paramagnetic Battery Cathodes with EPR and DFT"

MARCH 2022:

Invited talk at the Global NMR Discussion presentation: provided an overview of paramagnetic NMR applied to sodium-ion batteries to researchers from across the globe ("Motion, Migration, Charge Compensation in a Na+-ion Battery Cathode: Tales from the Paramagnetic NMR Storybook")

OCTOBER 2021:

Invited talk to Clément, Van der Ven and Seshadri Groups at the University of California, Santa Barbara about characterising the electronic, magnetic and chemical structure changes induced on electrochemically cycling sodium-ion battery cathode materials.

MARCH 2021:

Virtual Presentation to Selwyn College Natural Sciences Society about undertaking a PhD in Chemistry and my research on lithium- and sodium-ion batteries

MARCH 2021:

Invited talk to Cliffe Group at the School of Chemistry in the University of Nottingham about studying structural changes in sodium-ion battery cathodes

JANUARY 2020:

Presentation to the research groups based at the Centre de RMN à Très Hauts Champs in the Ecole Normale Supérieure de Lyon (France) about using NMR to study sodium-ion dynamics in sodium-ion battery cathodes

NOVEMBER 2019:

Poster presentation at the European Federation of Electron Paramagnetic Resonance school in Brno (Czech Republic) about using EPR spectroscopy in battery materials

Awards

2025

• Marie-Skłodowska-Curie Fellowship fund (€250,000), scored 98.6/100 • Royal Society of Chemistry Research Development Grant (£500)

2024

• Poster Award, Ab Initio Modelling in Solid State Chemistry Workshop

2023

• Royal Society of Chemistry Research Development Grant (£500)
• Heeger Fellowship ($US 500)
• University of Cambridge Outstanding Thesis prize
• Poster Award at the Materials Research Society Fall Meeting

2022

• Selwyn College Travel Award (£2500)
• Royal Society of Chemistry Research Development Grant (£500)
• International EPR Society poster award at the Rocky Mountain Conference on Solid-State NMR and EPR
• Three-Minute Thesis Winner, Selwyn College

2021

• Selwyn College Travel Award (£800)

2019

• Department of Chemistry, University of Cambridge Travel Award

2018

• Emeleus Prize for Distinction in Inorganic Chemistry
• Johnson Matthey Prize for Best Inorganic Research Project
• Ron Snaith Award for Best Inorganic Chemistry Research Presentation

2017

• BP Prize for Outstanding Work in Practical Chemistry
• Walters-Kundert Sciences Summer Studentship Fund (£1800)

2016

• Cambridge Materials Placements for Undergraduates Studentship (£1800)