EMILY GAMBLEN

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CURRENT EMPLOYMENT

• **Lancaster University** *September 2019 - present*
PhD Candidate in **Nanoscience** - Graphene NowNano CDT
Postgraduate Teaching Assistant, Postgraduate Committee Representative & Outreach Ambassador

SKILLS

• **Device and materials characterisation** with AFM, Raman spectroscopy, SEM, low-temperature electronic characterisation in a closed-circuit dilution refrigerator and helium evaporation cryostat, including use of superconducting magnet
• **Clean room** and other scientific **device fabrication** including optical lithography (especially laser writing), device design and mechanical exfoliation of 2D materials
• **Python** for data handling, analysis, graphing and numerical simulation, LaTeX, html
• Native **English** speaker, basic **French** (GCSE) and **Chinese (Mandarin)** (Confucius Institute)

PROJECTS AND EXPERIENCE

• **Using 2D Materials-Based Sensors to Measure Magnetism in 2D Materials** *2020 - present*
PhD Project

· Supervised by Dr Jonathan Prance and Dr Michael Thompson (Lancaster University Physics Dept.)
· In collaboration with Dr Roman Gorbachev (National Graphene Institute, University of Manchester)

• **Postgraduate Representative** *2020 - present*

· Acting representative for all postgraduate research students in the department for both the Student-Staff Consultative Committee and the Physics Staff Advisory Committee
· Involves liaising with all postgraduate researchers and acting as an arbitrator between the student body and the departmental administration

• **Postgraduate Teaching Assistant** *2020 - present*

· Teaching responsibilities (including solo teaching) and marking coursework and presentations from a range of university levels, from first year introductory courses to the advanced semiconductor lasers course offered to final year MPhys students

• **2D Conference Organising Committee** *2021 - 2022*
https://www.2dconference.co.uk/

· Responsible in collaboration with the other committee members for timetabling, venue, sign-up, sponsorship and transport for 2D Conference 2022, with over 100 participants plus invited speakers and exhibitors

• **MPhys Project** *October 2018 - March 2019*
Investigating Development of a New Plastic Dilution Refrigerator

· Development of research skills and gaining experience of the operation and cooling mechanisms of commonly used ultra-cold refrigeration methods including the basics of magnetic and dilution refrigerators
· Produced a prototype design for and investigated the practical feasibility of a miniature plastic dilution refrigerator.

PRESENTATIONS AND PRIZES

• **Winner: Faculty of Science and Technology PhD Speed Talk Competition** *27-03-2023*
talk:

· 2D Superconductors: Do they levitate?

• **29th International Conference on Low Temperature Physics Sapporo** *18-24 Aug 22*
poster: Exploring Applications of Graphene-Based Josephson Junctions

• **International Conference on Ultra Low Temperature Physics, Otaru** *25-28 Aug 22*
poster as above

• **CMD-29 (IOP Condensed Matter Division)(remote)** *21-26 Aug 22*
poster as above

• **2D Conference 2022** *27-30 June 22*
poster: Investigating Properties of 2D Materials Using 2D Materials-Based Sensors

EDUCATION AND TRAINING

• **Mandarin Chinese Language Course** *2022 - present*
Convened by Lancaster University Confucius Institute

· Level 1 and 2 complete, Level 3 upcoming

• **Condensed Matter Group Postgraduate Lectures** *2021 - present*
Offered by the Condensed Matter Physics group at Lancaster University

· These lectures cover a wide range of topics in short 5-week courses, from advanced condensed matter theory to practical electronics to using blender to generate 3d images to scientific programming skills

• **Commercialisation and Innovation Course** *2022*
Offered by Graphene NowNano CDT in collaboration with the University of Manchester Business School

· Focused on pitching to a business audience for scientific start-up enterprise

• **Advanced European School on Cryogenics Cryocourse** *20-28 Sept 2021*

· Provided by the European Microkelvin Platform to facilitate international education and collaboration in the fields of low temperature physics and cryogenics

• **NowNano CDT Training** *2019 - 2020*

· Theoretical training and practical labs in fabrication and characterisation techniques of 2D materials, as well as broader lectures in ongoing research in other related fields, such as biophysics and medicine

• **MPhys Physics Hons** *2015 - 2019*
Lancaster Unviersity, Lancaster, UK **2i (Upper 2nd Class)**

· Including courses in fluid dynamics, quantum information processing, low temperature physics and semiconductor devices

• **Secondary Education** *2008 - 2015*
Oldham Hulme Grammar School, Oldham, UK

· A-levels in Biology, Maths, Physics, Gen. Studies, Further Maths, Chemistry **AAAABb**
· 10 GCSEs including English(**A***), Maths(**A***), French(**A**) and Sciences(**A***) **A* - B**