

# Dr Jennifer L. Hawkin

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## Academic Experience

- 2024-present **Postdoctoral Researcher**, *University of Sheffield, UK (Chemical & Biological Engineering Dept.)*, Resource Efficiency in Plastics and Chemical Systems
- 2021-2024 **PhD**, *University of Cambridge, UK (Engineering Dept.)*, **Title:** Do Net-Zero plans add up? A framework and model to quantify risks of resource supply shortages in climate mitigation strategies, **Supervisor:** Professor Julian Allwood
- 2012-2021 **Industrial Experience (see below)**, *Rolls-Royce & Engineers-Without-Borders UK, Singapore, Malaysian Borneo*
- 2008-2012 **BA & MEng (Hons) Mechanical Engineering**, *University of Cambridge, UK*, Distinction  
Included one year studying at Massachusetts Institute of Technology (M.I.T.), USA

## Industrial Experience

- 2017-2021 **Rolls-Royce PLC, UK**, *Roles included: Technical Assistant to the Chief Technology Officer, Sub-System Integration & Component Design, Innovation Technology Lead.*
- Diverse high-profile responsibilities against demanding timescales
  - Developed an insight into the reality of initiating change in large industrial companies
- 2016-2017 **TONIBUNG (Friends of Village Development), Malaysian Borneo**, *EWB-UK (Engineers-Without-Borders UK) Fellowship Volunteer*
- Collaborated with local and international colleagues to develop and roll out novel technology for clean electricity generation in remote communities
- 2016 **Rolls-Royce, Singapore**, *Regional Coordinator (Secondment)*
- Scoped and drafted the proposal for a government funded research centre in Singapore
- 2012-2016 **Rolls-Royce PLC, Derby/Bristol/Singapore**, *Various roles in Supply-Chain and the Strategic Research Centre*
- Projects included cross-sector work, taking a strategic view of emerging technologies
  - Numerous training courses, e.g. Robust Design and Failure Modes & Effects Analysis

## Selected Conference and Event Participation

### 2025 Oral & Poster Presentations

- "Re-evaluating plastics end-of-use treatment options" and "Engineering Risk Assessments for Climate Policy - Can Failure Modes and Effects Analysis (FMEA) improve the prospects of Carbon Dioxide Removal (CDR)?", presented at *the Industrial Society for Industrial Ecology (ISIE) Conference (Singapore)*
  - "Do Net-Zero plans add up?", presented at *the World Resources Forum (online)*
  - "Constraints on carbon circularity in the petrochemical sector", presented at *the Annual EDITS Meeting (Energy Demand changes Induced by Technological and Social innovations)*, IIASA, Laxenburg, Austria
- 2024 **Oral Presentation**, *Annual EDITS Meeting (Energy Demand changes Induced by Technological and Social innovations)*, IIASA, Laxenburg, Austria  
"A model and interactive calculator to aggregate demands of climate mitigation proposals"

**Invited participant**, *UNEP & Life Cycle Initiative Biogenic Carbon in LCA Guidance Project Workshop*, Bath, UK

**Poster**, *ISIE (Industrial Society for Industrial Ecology) Gordon Research Conference*, Les Diablerets, Switzerland

"Is Net-Zero at Risk? Modelling aggregated energy demands of climate mitigation plans reveals high risk 2050 expectations."

**Invited discussion leader**, *ISIE Gordon Research Seminar*, Les Diablerets

"Decarbonization Across Sectors"

2023 **Invited speaker**, *Panel discussion: Clearing the air - information literacy in the climate crisis*, Cambridge University

**Oral Presentation**, *Symposium: "Governance, law and economics of climate change and energy transition"*, Cambridge University

"What scale of negative emissions can we rely on?"

**Oral Presentation**, *ISIE Conference*, Leiden, The Netherlands

"A framework for aggregating energy demands of net-zero proposals"

2022 **Oral Presentation**, *Cambridge Zero Research Symposium*

"Should 'we' change our behaviour to reach net-zero?"

2017 **Invited speaker**, *Institution of Mechanical Engineers, Singapore Network*

"Micro-Hydro Power - Clean and Affordable Electricity in the Jungle"

2015 **Invited speaker**, *Institution of Engineering and Technology East Midlands Network*

"Are Unmanned Autonomous Vessels the Future for Commercial Shipping?"

## Teaching Experience

2025 **Project Co-Supervisor**, *University of Sheffield*

Two masters-level students

2025 **Tutor**, *Engineering Dept., University of Cambridge*

Masters level: "Climate Change Mitigation"

2022-2024 **Facilitator**, *Engineering Dept., University of Cambridge*

Undergraduate poster sessions: "Sustainable Engineering"

2021-2024 **Tutor**, *Engineering Dept., University of Cambridge*

Masters and undergraduate level: "Climate Change Mitigation" and "Structural Design"

2022-2023 **Supervisor**, *Engineering Dept., University of Cambridge*

Undergraduate course: Materials thermodynamics & diffusion and materials processing

2022-2023 **Interviewer**, *St Catherine's College, University of Cambridge*

Undergraduate admissions (Engineering)

## Professional Development and Institutional Engagement

2025 **Prize: Best Poster (runner-up)**, *ISIE Conference (Singapore)*

2022-2024 **Equity, Diversity & Inclusion Steering Group**, *Darwin College, Cambridge*

2020-2022 **Ethical Principles Committee**, *Institution of Mechanical Engineers (IMechE)*

2018 **Chartered status achieved**, *IMechE*

2016 **Volunteering and Personal Development Award**, *IMechE*

## Additional Skills

### Coding:

- Python for model implementation
- RStudio/RMarkdown for documentation

### Languages:

- Conversational Italian
- Conversational German
- Basic French

### Other activities and interests:

Recreational sports (including swimming, cycling, rambling and rock climbing); European folk dance; Scouting

## Publications

- 2025 **End of life management for wind turbines**, *Nature Reviews Clean Technology*, Meng, F., Hawkin, J.L., Gast, L. *et al.*, DOI: 10.1038/s44359-025-00097-3
- Treatment of Temporary GHG Removals in Voluntary Carbon Markets**, *Cambridge Open Engage (Preprint)*, Zschietzschmann, H., Hawkin, J.L., Rosser, J.P. *et al.*, DOI: 10.33774/coe-2025-5sbl5
- Aggregating demand for three fundamental resources to avoid burden-shifting in climate policy (under review)**, *Environmental Science & Technology*, Hawkin, J.L., & Allwood, J.M.
- Re-evaluating plastics end-of-use treatment options for carbon sequestration (in preparation)**, *Hawkin, J.L., Ryan, A., Cullen, J., & Meng, F.*
- A review of the constraints on carbon circularity in the petrochemical sector (in preparation)**, *Hawkin, J.L., & Meng, F.*
- 2024 **Do net-zero plans add up? A framework and model to quantify risks of resource supply shortages in climate mitigation strategies**, *PhD Thesis*, Hawkin, J. L., DOI: 10.17863/CAM.119203