Example Nomination 1

Please find below a previous nomination from one of our prize finalists, provided as an example to illustrate what a strong nomination looks like. Due to the nature of the content, it is not possible to fully anonymise the submission; however, all personal details have been removed, and the nominee has given permission for their form to be shared. For confidentiality reasons, Section 2 (the Head of Department statement) has been omitted. Please note that the questions on the nomination form may have changed since this submission was originally made.

Godfrey and Sue Hall Doctoral Researcher Prize XXXX nomination form

Section 1 – to be completed by the researcher

Please submit this nomination form to your Head of Department, or Head of Division in the School of Management, by **XXXX.**

Your Head of Department, or delegated departmental contact, will be asked to shortlist the nominations received to a maximum of two per department to put forward to the Prize Committee. They will complete the supporting statement in Section 2 for each shortlisted candidate. You will be notified if your application has made it through to the Committee shortlist.

Researcher details

Please type in the space after each question.

Full name:
Department/School:
University email address or username:
Date first registered for research degree at the University of Bath:
Degree currently registered for:

Title of research project

Please type in the space, below.

Advancing Mycelium-Based Composites for Sustainable Insulation

Description of research project

Please give details of your research work in terms which can be understood by a non-specialist reader.

The Committee will assess this section of your nomination based on the following criteria (please see the nomination guidelines on pages 1-2 for more detail):

- Clarity and strength of the case

- Wider significance of the research
- Original contribution to the research

Please type in the space below and limit your response strictly to 500 words.

The construction industry accounts for 37% of global carbon emissions and 62% of UK waste. Traditional insulation materials, such as expanded polystyrene, are energy-intensive, derived from finite resources, and contribute significantly to landfill. Yet insulation remains crucial for reducing building energy demands. My research focuses on a sustainable alternative- mycelium-based composites (MBCs). Mycelium, the root-like structure of fungi, colonises and binds together organic matter. The colonised substrate is dried, killing the fungus to create a non-living material with low embodied carbon, good insulation properties, and waste repurposing potential. However, key challenges limit their use; my work addresses this by improving thermal measurement accuracy, exploring factors affecting performance, assessing mould susceptibility, and developing novel waste-based applications.

Uncertainties in thermal conductivity measurement limit MBC development. My published literature review highlighted measurement inconsistencies and emphasised that without standardisation, meaningful comparisons between studies are limited, preventing optimisation. To address this, I conducted a study quantifying differences between thermal measurement methods and improving calibration for cross-study comparability. This research, presented internationally and published, advances reliable thermal characterisation of MBCs. I am now using simulation modelling to quantify thermal property uncertainties, identify their origins, and enhance bio-based insulation characterisation for material improvement.

Choice of fungal species is important in MBC production, yet its influence on material performance remains underexplored. I conducted the largest interspecies comparison of MBCs to date, testing over 30 fungal species across various substrates. By measuring thermal properties and performing chemical analysis, I advanced understanding of species' roles in achieving desirable thermal performance. This work, demonstrating the viability of novel species-substrate combinations for versatile production, has been accepted for conference publication. A separate journal paper, preparing for submission, expands on these findings with further analysis.

Durability and mould resistance are critical for construction materials. As MBC interest grows, understanding mould susceptibility is essential for ensuring safety. I am conducting the first controlled study on MBC mould susceptibility, exposing samples to environmental moulds and developing sustainable prevention methods using antimicrobial yeast co-cultures. My research provides essential data on mould

risks and safe-use conditions. Additionally, it addresses the broader challenge of mould susceptibility in bio-based construction, ensuring sustainable alternatives do not compromise safety.

Beyond performance optimisation, my work advances MBCs' potential in waste repurposing. I successfully developed MBCs using waste Tetra-Pak and reclaimed oriented strand board, transforming problematic waste into sustainable insulation. By leveraging fungi's digestive abilities, I expanded MBCs' role in processing complex waste streams. This work, presented at the International Mycological Congress and under journal review, demonstrates their potential beyond agricultural waste. My ongoing research explores incorporating plastic and construction waste to expand MBC applications.

I have used knowledge in microbiology, material science, and engineering to advance MBC research and contribute to a more sustainable construction industry. While the sector must transition to sustainable materials, their viability depends on rigorous research. I have contributed to this by improving thermal characterisation, investigating fungal species and substrate interactions, assessing mould susceptibility, and expanding MBCs for processing complex waste streams.

Details of publications and academic contributions

Please use Harvard referencing format, in a numbered list, when detailing publications, as follows:

Surname, Initial. (Year of publication) 'Title of article', *Title of Journal*, volume number (issue number), page reference. [If accessed online:] Available at: URL (Accessed: date)

Please type in the space after each question.

Publications already published, relevant to this research:

1. AAAAA

2. BBBBB

Publications already submitted, relevant to this research:

1. CCCCC (accepted)

2. DDDDD (accepted)

3. EEEEE (under review)

4. FFFFF (under review)

5. GGGGG (preparing to submit)

Any other academic achievement or contribution:

For example, product/patent development, contributions to impact, awards/prizes, acquisition of further qualifications, major conference presentations

Oral presentation delivered at the Net-Zero Future Conference in HHHHH, 2024

Oral presentation delivered at the International Mycological Congress in IIIII, 2024

Invited speaker for the British Mycological Society lectures, 2025

FameLab UK winner and FameLab International finalist, 2024

Invited main stage speaker and guest panellist at the Silesian Science Festival in Katowice, Poland 2024

Co-workers on the project:

Please include names and departments

This research has been conducted independently under the supervision of Prof AA (DEPT BBBBB), Dr. CC (DEPT AAAA), and Dr. DD (DEPT CCC)

Wider contributions

Have you made any contributions to university life and the university's reputation alongside your research? (E.g., teaching, partnership building, work placements, contributions to research culture, representation of PGR interests)

Please provide no more than three examples and limit your response strictly to 100 words in total.

FameLab Winner and International Finalist - I won the UK FameLab competition, the country's largest science communication contest, performing at Cheltenham Science Festival before representing the UK in the international final. See coverage;

https://www...

University Challenge Captain - After winning internal auditions and months of daily practice, I captained Bath to a successful audition, securing a top 28 spot out of 130 applicants and competing on the televised series.

Science Communication - Public engagement is key to my research. I was an invited speaker at the Silesian Festival in Poland, the British Mycological Society, and UK festivals. I create educational content for YouTube and the university's media team.

Are there any Equality, Diversity and Inclusion considerations you would like to make the panel aware of? *(Optional)*

Please type in the space, below.