

Postdoctoral Researcher (UK-2025-CCMP) *Call for Applications*

[Topos Institute](#) is searching for a **Postdoctoral Researcher** working on the theory and practice of compositional conceptual modelling, based in **Oxford, UK**.

Summary

We are a non-profit research institute dedicated to realising a world where the systems that surround us benefit us all, so that society can better cooperate on critical issues – the climate crisis, pandemic responses, agricultural modelling, global access to education, and more – through interconnected systems that consider holistic impacts. We develop new tools for collective inquiry and modelling, enabled by a combination of novel foundational mathematics, open-source software engineering, and meaningful collaboration with domain specialists.

Our technical team draws on training in mathematics, computer science, chemistry, philosophy, and more. Collaboration and discussion are fundamental to our work culture, so we deeply value gathering in person at the office.

- **Title:** Postdoctoral Researcher
- **Start date:** 15th of October, 2025
- **Location:** Oxford, UK (in-person)
- **Employment type:** Full-time (1FTE)
- **Duration:** 1 year
- **Salary:** £46,275–50,902

Topos is committed to building a team with diverse perspectives and life experiences, so those with personal or professional backgrounds underrepresented at Topos are highly encouraged to apply.

Further information about Topos Institute, including our [Blog](#) and [YouTube](#) pages, can be found on our website: topos.institute.

[Topos Research UK](#) is a non-profit start-up in the UK (inc. 2024) with affiliated charity start-up [Topos Institute](#) in the US (inc. 2019). For more information, see topos.institute/legal.

About the position

This is a **1-year postdoc** with the **opportunity for transition into a staff scientist role**. We will be laying the groundwork for a compositional modelling framework allowing

This job advert is dated the 17th of September 2025

for collaborative design and validation of models on the firm formal basis of type theory and category theory.

In this project, you will conduct research in categorical systems theory with our researcher David Jaz Myers. We will make use of the methods of 2-category theory, categorical logic, and algebraic systems theory to develop a mathematical framework for compositional modelling and compositional model/system validation. In particular, we will be developing the research program of double operadic theory of systems, studying the formal category theory of double operad algebras of systems to study model composition, model surrogacy, and assume-guarantee reasoning. We will investigate compositional validation of composite models by relating such double categories, for example through black-boxing / behaviour functors.

A component of this project is bridging the gap between domain expertise in modelling and validation with this categorical theory, so we will also work on expository materials expressing the lessons of double categorical systems theory in ways domain experts can use.

Responsibilities

- Research in the double categorical compositionality of systems and mathematical models, and specifications.
- Writing papers on this research.
- Collaboration with other mathematicians working in categorical systems theory, model checking, and categorical logic.

About you

Our ideal candidate either:

- has a background in algebraic systems theory or model/system validation with some knowledge of category theory and an eagerness to learn double categorical systems theory; or
- has a background in 2-category theory or categorical logic and an eagerness to work on systems modelling and validation.

You should have (or soon be obtaining) a PhD or equivalent in, or have made significant contributions to, one of the areas of algebraic systems theory, system validation, model validation, 2-category theory, or categorical logic.

There is evidence to suggest that women and people of color are less likely to apply for jobs unless they believe they meet every one of the qualifications as described in the

job description. If this role speaks to you, we encourage you to apply, even if you don't believe you tick all the boxes.

Eligibility criteria

Topos will consider sponsoring a UK visa for a successful applicant. **Please include details of your visa requirements (if any) in your application** (e.g. in your cover letter).

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, or disability.

Us and you

We are dedicated to shaping the future of technology to ensure a more equitable and just world, and we believe that a technology that supports a healthy society can only be built by an organisation that supports its team members. As such, Topos is committed to ensuring that we clearly and compassionately negotiate your role and responsibilities while you're at Topos, and then ensuring that you have the support that you need to fulfill that role.

Topos UK offers benefits including private health and dental insurance, 30 days paid holiday (plus public holidays), and a variable pension plan.

Application process

To apply for this position, please email uk-2025-ccmp@topos.institute with the subject line "UK-2025-CCMP" and two PDF attachments:

1. a copy of your CV; and
2. a cover letter **including the contact details for two references** who we can contact.

Your cover letter might describe your interest in the Topos Institute and this position, your professional experience, your future goals, your specific relevant experience, and your potential contribution to a diverse and inclusive environment at Topos. Please feel free also to convey any information about preferred names and pronouns.

Please note that we will **not** contact your references without first notifying you.

We will review applications on a rolling basis.

If you have any questions about the application, or the role in general, please email uk-2025-ccmp@topos.institute.