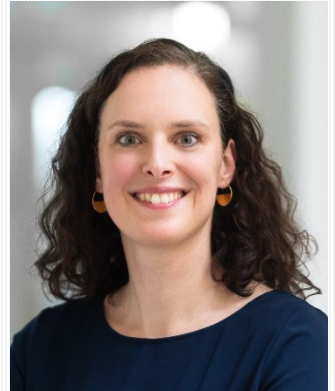


# Ingredients for photonic quantum computing: entanglement, fusions, and integration

## Prof. Stefanie Barz

University of Stuttgart

**May 13, 2026** (Wed.) **16:00–17:00** (JST)



This colloquium will be held in **HYBRID format**.

**On-site Venue:** [Wako C00](#) HQ 2F Large Meeting Room

**Online Venue:** Zoom. To receive the link, register in advance at

[https://krs2.riken.jp/m/rqc\\_registration\\_form](https://krs2.riken.jp/m/rqc_registration_form)

This talk explores key aspects of photonic quantum systems and their applications in quantum computing. It will cover three aspects: generation of resource states, fusion operations, and scalability via integration. I will begin by discussing quantum interference and its role in creating resource states for photonic quantum computing. Next, I will examine fusion operations, which form the fundamental building blocks for photonic quantum processors and networks. Finally, I will consider how photonic integration enables scalable architectures, highlighting both the opportunities and challenges in realising larger, more complex quantum systems.