



The aim of the research project “Practical measurement-based quantum computing” is to explore project explores the feasibility and practicality of Measurement-Based Quantum Computing (MBQC), a paradigm distinct from the traditional circuit-based quantum computing model. We will identify its strengths for various applications whilst addressing MBQC's practical limitations .

We will implement and scale MBQC on integrated photonic processors and evaluate effects like photon source quality and circuit imperfections. We will expand towards secure quantum computing, specifically leveraging MBQC's unique structure for blind and delegated computation protocols.

**Join our cutting-edge research team realise photonic quantum computing with integrated photonics:**

- Use and develop state-of-the-art setups for characterising integrated photonic circuits and photon sources
- Test circuits, operate them on a single-photon level
- Create and characterize highly entangled photonic resource states
- Realise applications in quantum computing

**You have:**

- Interest in collaborative and interdisciplinary research
- MSc in Physics, or related
- Experience in experimental quantum optics and (photonic) quantum technologies
- Programming skills (Python, Mathematica, Matlab, ...)

**Be part of the future of quantum innovation—apply now!**

**Send your application by Feb 15<sup>th</sup> 2026 with:**

- Short statement of research interests (max. 1 page) & prior experience
- CV
- Certificates or transcript of records
- Contact details of three referees

**The positions are fixed term and available until filled.** The position is funded via the Priority Programme 2514: Quantum Software, Algorithms and Systems (75% TVL E13).

For more information:

- please contact Prof. Dr. Stefanie Barz: [barz@fmq.uni-stuttgart.de](mailto:barz@fmq.uni-stuttgart.de), [www.barzgroup.de](http://www.barzgroup.de)

**1 PhD position in  
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