

**Call: IQST Graduate School @Quantum<sup>BW</sup>**

We are looking forward to receiving your application: Please **submit by September 1<sup>st</sup>, 2024**, to [gradschool-application@iqst.org](mailto:gradschool-application@iqst.org)

**This is what makes our graduate school different - and unique**

The graduate school in QuantumBW closes the gap between basic research and technology development. It promotes doctoral projects with technological potential, which are still at a stage of research. And it extends across Baden-Württemberg to build a network of excellent young talent in quantum science and technology – preparing them for a career in science, in the corporate world and to make them bridge builders in between.

**PhD project structure**

Accordingly, our structure is

**1 PhD project = 1 academic partner + 1 industry partner + 1 PhD student**

- The academic partner is the supervisor, a professor at a university in Baden-Württemberg (BW), and IQST fellow.
- The industry partner, working at a company in BW, takes the role of a mentor for the PhD candidate, maintains a regular dialogue, introduces the company aspects to the project and opens up company-side support.
- The PhD student is employed by a university or research institute in BW.
- A  $\geq 3$  months internship at company is obligatory – more is welcome.

We are looking for

- a research topic of academic interest with high technological potential
- project jointly designed and implemented by all partners
- commitment on both sides over entire project and on publication of scientific results regarding to terms of the supervising university

## Funding

For **up to 4 years** we grant

- **one PhD position** (according to the DFG rates and usual percentage of respective discipline)
- **20 T€ for direct costs per year**

and expect the assignment of the PhD position **within 6 months** after approval.

## Requested commitment by the academic partner

- supervisor is IQST fellow or applicant pending
- active participation of supervisor and student in (previous and/or) future IQST events

## Requested support from the industry partner (depending on respective project)

- continuous mentoring and supervision
- access to infrastructure/training programs
- provision of equipment and components
- project-specific participation opportunities

## Review Criteria

What matters in any case

- innovative and pioneering ideas & topics in quantum science and/or technology
- scientific excellence
- significant benefit for a particular application in quantum technologies
- strategic relevance for the quantum ecosystem BW
- intensity and added value of collaboration between academia and industry
- extend of commitment/support by industry partner

... and what's favourable, but not mandatory

- *new* collaboration between academia and industry
- individual-creative element - an unconventional idea, something that doesn't cost much time or money and yet gives the project something special, makes the project partners smile again and again and perhaps makes it known far beyond the participants...

For questions about your application, please contact IQST office via [gradschool-application@iqst.org](mailto:gradschool-application@iqst.org)

**Project Application – IQST Graduate School @Quantum<sup>BW</sup> (max. 5 pages)**

**1. Let's start with your passion. What is the project about? Summary (~0.25 page)**

*Give a short, generally understandable description of the project idea*

**2. Let's dive deep and become strategic. Content and strategic objectives (~0.5 page)**

*In what sense contributes the project to the frontiers of quantum science and transfer to applications? What are the relevant scientific questions and the innovation potential to which the project is aimed. What makes the project unique? Which strategic relevance has the project for the quantum ecosystem in BW?*

**3. Look around: Current status of research (~0.5 page)**

*Please summarise the current status in the context of international research in the field. Cite the relevant publications according to the format given below.*

**4. Look back: Own preliminary work (~0.5 pages)**

*Describe your contribution to the research in the field so far. Cite all relevant own publications that are citable. Please avoid papers in preparation. If papers are available on the arXiv please give the respective reference.*

**List of most relevant and published preliminary work**

*Please include all relevant authors of your own papers.*

[1] E. Tiesinga., Phys. Rev. A **46**, 1167 (1992).

[2] S. Giovanazzi, A. Görlitz, and T. Pfau, Phys. Rev. Lett. **89**, 130401 (2002)

[3] M. [Dressel](#), B. [Gorshunov](#), K. [Rajagopal](#), S. [Vongtragool](#), and A. A. [Mukhin](#)  
arxiv: 0110340 (2001)

**5. Now it's your partners' turn. Status of applications/prototypes (~0.5 page)**

*Please describe where the industrial collaborator currently stands, which fundamental issues need to be solved for an application/product and how the academic side can contribute to that. Which competitors are there? Where do they stand? In what way is the application technologically/socially relevant?*

**6. Look at each other: Why are the two partners the best fit?**

*Please answer every of the following questions separately: What indispensable and unique qualities do only the respective partners bring to the table? Why can the project not be completed by the institution/industry partner alone? What does the student learn from the industry/academic partner?*

## **7. Make two plans. Project plans and milestones**

*Scientific plan: Describe how the objectives of the project are to be achieved. Define milestones for the next 4 years.*

*Management plan: How will the collaboration realised in practice? How will the continuous mentoring be organized? When and how long will the PhD candidate be working at the company?*

## **8. What do you need? Funding**

*Please quantify the required funding/year*

- *Staff* (according to the DFG rates and usual percentage of respective discipline)
- *direct costs*

## **9. Description of tangible/intangible support by industry partner**

*Describe, how the industry partner supports the project by access to infrastructure, training programs, provision of equipment and components and/or other project-specific contributions.*

## **10. Be unconventional and creative, if you like. Do something special.**

*Describe a little something that you always look forward to when there are tough phases - nothing expensive or time-consuming - and perhaps something that many people learn about your project - during your work or once it's done...*

## **11. Almost done! Look at your work once again – and give it a name. Project Title**

*title*

## **12. Last but not least – you. Applicants**

Academic Partner	Industry Partner
<i>Name</i>	<i>Name</i>
<i>Affiliation</i>	<i>Affiliation</i>
<i>e-mail address</i>	<i>e-mail address</i>