Scientific Area	Developing Quantum Software q. control, q. engineering, optimal control
Topic title	Dynamic control of non-stationary noise processes in engineered quantum systems
Main host institution	KIT www.kit.edu
Supervisor/institution	Anja Metelmann/KIT www.metelmann-group.com
Co-Supervisor/institution	F. Schreck/UvA Amsterdam www.uva.nl/en
Mentor[1]/institution	Alexander Shnirmann/KIT www.kit.edu
Secondment institution	PTB Braunschweig: https://www.ptb.de/cms/ and/or Zurich Instruments: https://www.zhinst.com/ch/fr

Topic description

The research projects is focused on the of theory and applications of engineered quantum systems as complex open quantum systems. The project addresses the intricate challenges posed by non-stationary noise processes in the context of continuously driven nonlinear open quantum systems. Specifically, the focus is on developing robust strategies to effectively manage and mitigate the impact of non-stationary noise. This endeavor encompasses a comprehensive approach that takes into account non-classical input scenarios, recognizing the unique complexities they introduce. Additionally, the project aims to provide innovative solutions for measuring relevant quantities within the system, thereby advancing our understanding and control of these dynamic quantum processes

Recommended applicant's profile

Master degree in Physics or a related field.
Desirable skills: Knowledge about open quantum systems theory, basics on quantum optics and its applications. Experience with engineered quantum systems, for example superconducting circuits and/or optomechanical systems. In addition, interest in working together with experimentalists and proficiency English.

[1] Mentor: The primary role of the mentors will be to identify and facilitate specific training objectives, advise on any problems faced by the DC, including career matters with an external perspective and provide mediation in the case of disputes.

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