

SPP 2514

Q-STAV | Annual Meeting | YIN Retreat | Advisory Board

Project Spotlights

RydOpt – P2

Project P2 has launched RydOpt (rydopt.readthedocs.io), a new open-source Python package for optimizing laser pulses that implement 2- and multi-qubit Rydberg gates in neutral atom quantum computing platforms. The package supports GPU and multi-core CPU acceleration through an efficient JAX-based implementation.

Nature Physics Publication – P5/P6

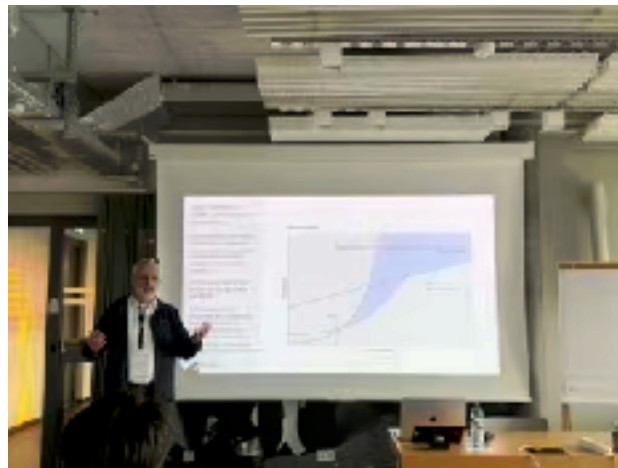
A paper by Prof. Jens Eisert (FU Berlin) and international collaborators, published in Nature Physics, establishes fundamental limitations of near-term quantum computing in the absence of quantum error correction, showing that performance is critically determined by gate fidelity. The work has been covered by press releases from several leading institutions.



Q-STAV 2026: A Successful Third Edition in Bern

On 23 February 2026, the third edition of the International Workshop on Quantum Software-Engineering Tools, Algorithms & Verification (Q-STAV) took place in Bern, Switzerland, co-located with SE'2026.

The workshop brought together researchers from classical software engineering and quantum computing to discuss current developments and future directions in quantum software engineering. Q-STAV 2026 received 18 submissions, of which 10 were accepted for presentation — a strong signal of the growing interest in this emerging field.



The day opened with a keynote by Ivano Tavernelli (IBM Research – Zurich) on quantum computing at utility scale, drawing an audience of over 50 participants and well received by the audience. Throughout the day, attendance remained strong, with between 30 and 50 participants across the four sessions.

The program covered a broad range of topics, from variational quantum circuits and compiler construction to hardware-efficient neural networks and trapped-ion quantum computing. Notably,

Podcast "Tiefes Wissen" – P5/P6

Prof. Jens Eisert joined science journalist Thomas Ramge for an in-depth conversation on quantum computing in the podcast Tiefes Wissen, which has attracted listeners across multiple platforms. In this episode, they explore the current state and future potential of quantum computing in an accessible and engaging format. Watch the full episode on YouTube:



Berlin University Alliance Grand Challenge Conference – P5/P6

Prof. Jens Eisert chaired the quantum programme at the 1st Grand Challenge Conference of the Berlin University Alliance, held 23–25 March 2026, in Berlin. The conference brought together almost 500 participants from across disciplines to address major societal and scientific challenges – with quantum technologies as one of five key focus areas, highlighting their growing role in tackling real-world problems. Learn more:



the afternoon sessions resonated strongly with the classical software engineering audience, underlining that both communities stand to benefit from closer collaboration and the exchange of methods and perspectives.

SPP 2514 was well represented, with several projects contributing accepted papers, including presentations on the ProvideQ hybrid optimization toolbox (P10), retargetability of quantum compilers (P10), and entanglement-informed circuit construction (P7), among others. An overview of all 13 projects can be found at spp2514.kit.edu/projects.



Slides from all presentations are available [on our website](#). We thank all contributors, presenters, and participants for making Q-STAV 2026 a productive and inspiring event.

Looking ahead, Q-STAV will return in 2027, once again co-located with the SE conference, which will take place from 22–26 February 2027 at TU Dortmund. We look forward to continuing the conversation — more details to follow. Further information about SE 2027 is available at se2027.cs.tu-dortmund.de.

Save the Date: MQSF 2026

The fourth edition of the Munich Quantum Software Forum (MQSF) will take place on 14–15 October 2026 in Munich. The forum brings together leading researchers, developers, and industry representatives from across the quantum software ecosystem to exchange ideas and discuss the future of quantum software. Registration and the call for software pitches will open in July 2026.



Munich Quantum Software Stack (MQSS) – P10/P12

The Munich Quantum Software Stack (MQSS) has been launched – a modular, open-source, and community-driven ecosystem for hybrid quantum-classical workflows. Built on tools developed within SPP 2514, the launch was accompanied by a joint paper release of "The Munich Quantum Software Stack: Connecting End Users, Integrating Diverse Quantum Technologies, Accelerating HPC".

MQT Extended with Catalyst and PennyLane Support – P10/P12

The Munich Quantum Toolkit (MQT) has been extended with support for Catalyst and PennyLane, connecting MQT's compilation and verification tools to Xanadu's widely used high-level quantum software environment – broadening the reach and interoperability of tools developed within SPP 2514.

MQT QDMI Integrated into AWS Amazon Braket – P10/P12

MQT's hardware-software interface QDMI, developed within SPP 2514, has been integrated into the AWS ecosystem via Amazon Braket. This marks an important step towards unified access across heterogeneous quantum systems. The results have been published as a

Save the Date: Annual Meeting 2026 in Stuttgart

As part of SPP 2514's regular exchange format, the Annual Meeting brings together all participating researchers once a year to share progress, exchange ideas, and strengthen the collaborative network of the programme. This year, the meeting will take place on 17–18 November 2026 at the [Eulenhof](#) in Stuttgart.

Bringing together all 13 projects spanning a wide range of topics along the quantum software stack, the programme will feature presentations from all projects across both days, giving each team the opportunity to share their latest research with the community. The first day will conclude with a poster session, providing additional space for discussion and exchange in an informal setting.

Day two will include a dedicated slot for the Young Investigator Network (YIN), an update from the Industry Advisory Board, a report from the Data Steward, as well as working group sessions and updates.

Further details on the full programme will be communicated in due course. We look forward to welcoming the SPP 2514 community in Stuttgart!

Announcing the First YIN Retreat: Obergurgl, December 2026

The Young Investigator Network (YIN) forms a central element of SPP 2514's efforts to support early-career researchers. Coordinated by Prof. Benedikt Fauseweh (TU Dortmund) and Dr. Tobias Stollenwerk (FZ Jülich), the YIN brings together PhD students and postdocs from across the programme to foster exchange, community building, and professional development.

We are excited to announce that the YIN will hold its first dedicated retreat from 7–11 December 2026 at the [Universitätszentrum Obergurgl](#) in Austria — offering an informal setting for a week of scientific exchange and networking.

preprint: "Standardizing Access to Heterogeneous Quantum Backends: A Case Study on Cloud Service Integration with QDMI".

MLIR Tutorial for Quantum-Classical Compilers – Working Groups

Following strong interest at the kickoff meeting of the SPP 2514 Compiler working group, a tutorial on using MLIR for quantum-classical compiler implementation is planned for the coming months. Stay tuned for further announcements.

LinkedIn

Please feel free to follow our LinkedIn profile where we frequently publish updates about the priority programme



Mailing List

The newsletter will be distributed via the mailing list spp2514-newsletter@lists.kit.edu

If you would like to subscribe to this list, please send an empty email to sympa@lists.kit.edu with the subject: subscribe spp2514-newsletter@lists.kit.edu
Name Surname

The programme spans five days and combines structured sessions with informal interaction. After an arrival and welcome event on the first day, participants will engage in two workshop days featuring project presentations and collaborative problem-solving sessions. The middle day combines a half-day workshop with an excursion, and the retreat concludes with a feedback session and lessons learned discussion on how the SPP 2514 community can collaborate more effectively going forward. We are also planning to invite an external speaker — more details to follow. Registration for YIN members will open on the SPP 2514 website next month.

Introducing the Industry Advisory Board

To ensure that the research conducted within SPP 2514 remains relevant and applicable across different quantum hardware platforms, SPP 2514 has established an Industry Advisory Board.

The board consists of five members, each elected for a term of three years, representing a diverse range of quantum hardware platforms and companies. The Industry Advisory Board will be invited to the SPP 2514 Annual Meeting, where a dedicated slot will give its members the opportunity to share their perspectives on current developments and the broader relevance of the programme's research. More information, including the board's charter, can be found [on our website](#).

DATE 2027 Call for Papers

The 30th DATE conference — the main European event on electronic system design and test — will take place in Dresden from 22–24 March 2027. Prof. Robert Wille (TU Munich), member of the SPP 2514 coordination board, serves as General Chair. The conference includes keynotes, special sessions, panels, and dedicated space for multi-partner research projects. Paper registration opens 13 September 2026. Learn more and submit your paper:

