

Dagstuhl seminar 26111 — Formal Analysis and Verification in Quantum Programming Languages — Schedule

Christophe Chareton, Yu-Fang Chen, Robert Rand, Peter Selinger

(Mar 08 – Mar 13, 2026)

Monday, March 09

Morning session: Opening

- Introductory talk by Christophe Chareton
- Brief thematic sessions:
 - Quantum programming languages (Charles Yuan)
 - Formal analysis of quantum error correction (Li Zhou)
 - Model-checking methods for quantum computing (Yu-Fang Chen)
 - Formal verification for quantum programming (Robert Rand)

Afternoon session: Breakout

- Theme gathering (plenary)
- Breakout session

Tuesday, March 10

Morning session: Plenary discussion

What are the current hot open problems for our community?

Afternoon session: Tutorials

- Synthesizing quantum compilers — Aws Aalbarghouti
- Quantum relational Hoare logic Qool — Dominique Unruh
- QuantumLib, SQIR and more — Robert Rand
- Qrisp — Raphael Seidel

Wednesday, March 11

Morning session

- Keynote : Advancing Quantum Computing with Knowledge Representation and Reasoning — Alfons Laarman
- Breakthrough

Afternoon : excursion

Thursday, March 12

Morning session: Plenary talks

- Keynote: Hamiltonian simulation — Jens Palsberg
- A semantics for quantum loops — Alessandra Di Pierro
- Quantum Algorithm for Boolean Matching Reversible Logic Circuits — Jie-Hong Roland Jiang

Afternoon session: Plenary talks

- Quantum programming and debugging with PennyLane — Olivia di Matteo
- Finding photonics circuits with SMT solvers — Benoit Valiron
- Parametrized verification of quantum circuits — Ondrej Lengal
- Intermediate representation in Qrisp compilation stack — Raphael Seidel (continuation)

Friday, March 13

Morning session

- Keynote : How circuit synthesis works — Peter Selinger
- Recap and concluding session