

Progress in Photonic Quantum Computing

843. WE-Heraeus-Seminar

21 - 24 Sept 2025

at the Physikzentrum Bad Honnef, Germany

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Sunday, 21 September 2025

17:00 – 21:00 Registration

18:00 *BUFFET SUPPER and informal get-together*

Monday, 22 September 2025

08:00 *BREAKFAST*

09:00 – 09:25 Scientific organizers
Video

Welcome words
About the WE-Heraeus-Foundation

09:25 – 10:10 Fabio Sciarrino

**Quantum machine learning with hybrid
photonics platform**

10:10 – 10:55 Kai Müller

**Superconducting nanowire single-
photon detectors for photonic
quantum technologies**

10:55 – 11:20 *COFFEE BREAK*

11:20 – 12:05 Fabian Wiesner

**The influence of experimental
imperfections on photonic GHZ state
generation**

12:05 – 12:50 Tobias Guggemos /
Iris Agresti

**Experimental photonic quantum
computing for machine learning tasks**

12:50 *LUNCH*

Program

Monday, 22 September 2025

14:20 – 15:05	Mamoru Endo	Key Technologies toward ultrafast optical quantum computation
15:05 – 15:50	Sophia Economou	Photonic resource state generation from quantum emitters
15:50 – 16:10	Tobias Huber-Loyola	Quantum dots in cavities for photon state generation
16:10 – 16:40	<i>COFFEE BREAK</i>	
16:40 – 17:00	Angela Sara Cacciapuoti (online)	On the quantum internet architecture
17:00 – 17:45	Guillaume Dauphinais	Quantum computing with photonic GKP qubits
17:45 – 18:10	Poster flashes 1	
18:30	<i>HERAEUS DINNER (social event with cold & warm buffet with complimentary drinks)</i>	
20:00 – 22:15	Poster discussion 1	

Program

Tuesday, 23 September 2025

08:00 *BREAKFAST*

09:00 – 09:45 Robert Raußendorf **Fault-tolerant quantum computation with 3D cluster states**

09:45 – 10:30 Pascale Senellart **Hybrid photonic quantum computing with semiconductor quantum dots**

10:30 – 11:00 *COFFEE BREAK*

11:00 – 11:45 Stephanie Barz **Ingredients for photonic quantum computing: entanglement, fusions, and integration**

11:45 – 12:30 Jelmer Renema **Integrated photonic quantum information processing**

12:30 *LUNCH*

14:00 – 14:20 Alcides Montoya **Quantum photonics in Latin America: landscape, gaps, and opportunities**

14:20 – 14:50 Karla Loida **The QCI's quantum computing ecosystem and its photonic contribution**

14:55 – 16:00 **Panel discussion**

Program

Tuesday, 23 September 2025

16:00 – 16:30 *COFFEE BREAK*

16:30 – 17:15 Falk Eilenberger

**Integrated active platforms for
photonic quantum computing**

17:15 – 17:35 Michael Stefszky

**PaQS - The Paderborn Quantum
Sampler**

17:35 – 18:00 **Poster flashes 2**

18:00 *DINNER*

19:30 – 22:00 **Poster discussion 2**

Program

Wednesday, 24 September 2025

08:00 *BREAKFAST*

09:00 – 09:45 Christine Silberhorn **Scaling photonic systems for quantum information science**

09:45 – 10:30 Tim Schröder **Diamond nanophotonic spin defects: A promising resource for photonic quantum computation**

10:30 – 11:00 *COFFEE BREAK*

11:00 – 11:45 Ian Walmsley **Lighting the quantum future**

11:45– 12:30 Jens Eisert **Thoughts on photonic quantum information processing**

12:30 – 12:45 Scientific organizers **Closing words**

12:45 *LUNCH*

End of the seminar and departure

NO DINNER for participants leaving on Thursday; however, a self-service breakfast will be provided on Thursday morning