

# Quantum Computing

Bad Honnef Physics School 2022

<i>Time</i>	<i>Sunday</i>	<i>Monday 15 Aug</i>	<i>Tuesday 16 Aug</i>	<i>Wednesday 17 Aug</i>	<i>Thursday 18 Aug</i>	<i>Friday 9 Aug</i>
08:00	Arrival	Breakfast				
09:00 – 10:30		Introduction to Quantum Computing (de Wolf)	Grover Search and Applications (de Wolf)	Quantum Error Correction and Fault Tolerance (Terhal)	Quantum Error Correction and Fault Tolerance (Terhal)	Quantum Walks (Simon Apers)
10:30		Break				
11:00 – 12:30		Computer Science Crash-Course: Time, Space, Complexity, ... (Gharibian)	Quantum Algorithmic Techniques (Apers)	QAOA, VQE, NISQ (Montanaro)	Combinatorial Optimization on Quantum Computers (Montanaro)	Grand Unification of Quantum Algorithms (Gilyén)
12:30		Lunch				
14:00 – 15:30		Quantum Programming (Zoufal)	Quantum Complexity Theory (Gharibian)	Excursion / ML4Q Lab Tour	Quantum Machine Learning (Gilyén)	Departure
15:30 – 17:30		Break			Break	
17:30 – 18:30		Exercises Q&A	Exercises Q&A		Exercises Q&A	
18:30		Dinner				
20:00		Kick-off talk: Quantum Computing with Superconducting Qubits (Barends)	Poster Session	Networking event: Women in Quantum Technologies (organized by Andrea Bliesener)	Evening talk & panel discussion: Quantum Computing Beyond Academia: Opportunities and Challenges (de Vega; Gogolin, Montanaro, Palackal, de Wolf)	