

QI 14: Quantum Computing in Industry

Time: Friday 14:00–15:30

Location: H3

Invited Talk

QI 14.1 Fri 14:00 H3

Quantum computing: scaling from university lab to industry

— ●JAN GOETZ and IQM TEAM — IQM Quantum Computers

Quantum computing has made its way from purely theoretical concepts in the 1980s through scientific breakthroughs in academia to full industrial efforts nowadays. A typical path, especially in Europe where large tech corporates like in the US or China are missing, is to create university spinouts to commercialize the technology. In this talk, I will discuss the question of what is necessary to create such deep tech companies out of academia on the example of IQM. I will introduce the European strategy for quantum computing which highlights the concept of quantum accelerators, where quantum computers are connected to supercomputing infrastructure. In addition, I will introduce concepts on how industry can be engaged even though commercial quantum advantage has still not been reached.

Invited Talk

QI 14.2 Fri 14:30 H3

Gate Based Quantum Computing at Volkswagen — ●MARTIN

LEIB — Data:Lab Volkswagen AG, Munich, Germany

In this talk I will be presenting a compilation of recent projects on the application of and research in gate based quantum computing at Volkswagen Data:Lab.

First, I'll be presenting our newest results concerning our Quantum Optimisation framework where we show how to get rid of the outer learning loop of the Quantum Approximate Optimisation Algorithm (QAOA) as well as a flexible method to investigate analytically the performance of QAOA. All this is presented with an optimisation example from VW's production lines.

Second, I'll be providing first results on an adaption of the QAOA to the realm of quantum machine learning, specifically generative learning.

Invited Talk

QI 14.3 Fri 15:00 H3

TBA — ●SARAH SHELDON — IBM Quantum, Almaden Research Center, San Jose, CA 95120, USA

TBA