

# Perspectives on Quantum Sensing and Computation for Particle Physics

**Dorota Grabowska**

*CERN TH*

*Coordinator of QTI Theory + Simulation Branch*

On Behalf of the Organisers

Stefano Carrazza (Milan), Michael Doser (CERN EP), Dorota Grabowska (CERN TH), Karl Jansen (DESY), Simon Knapen (LBNL), John March-Russell (Oxford), Matthew McCullough (CERN TH), Sofia Vallecorsa (CERN IT)



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# Workshop Details

*Focus of this two-week CERN TH Institute is the rapidly advancing field of quantum technology and, in particular, the role this technology plays in particle physics.*

## Week One: Sensing

- Utilising quantum sensors for new physics searches
- Identifying BSM models that can be probed via high-precision experiments

## Week Two: Computing

- Quantum algorithms for simulating particle physics
- Advancements and limitations in hardware and software

These topics are two promising applications of quantum technology in particle physics and thus the focus of several branches in the Quantum Technology Initiative

# Quantum Technology Initiative

*CERN-wide initiative to explore the impact and benefit of quantum technologies on particle physics*

Build community to bridge HEP and Quantum Computing Science

- Joint research projects
- Lectures
- Workshops

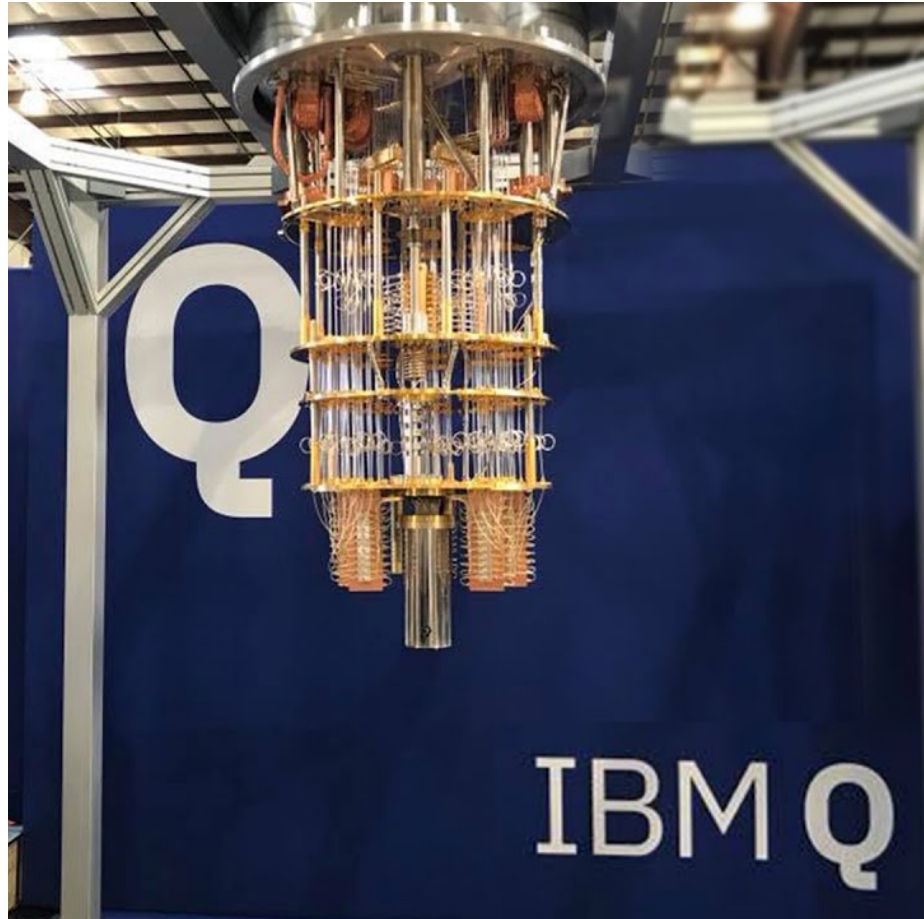
Collaboration and co-development to advance the state-of-the art

- Both inside and outside of CERN
- Collaborate with both academic and industry partners

Quantum Computing Platform to facilitate access to resources for the community

- IBM Hub

# CERN Quantum Hub



- CERN is a hub member of the Quantum Network
- Access to IBM Hardware based on quotas for Hub members and projects
- Agreement to 3 years at negotiated conditions
  - All members have the same conditions as CERN
- Currently looking for expressions of interest for new members
  - Either for individual membership or projects

(Please feel free to contact QTI for more information)

# Quantum Technology Initiative

*Hub for Collaborative R&D in Quantum Information  
Science and Technology*

**Michael Doser**

CERN QTI Sensing  
EP Department

**Sofia Vallecorsa**

CERN QTI Computing  
IT Department

**Alberto Di Meglio**

CERN QTI Coordinator  
CERN openlab Head  
IT Department — CERN

**Dorota Grabowska**

CERN QTI Theory & Simulation  
TH Department

**Amy Bilton**

**Benjamin Frisch**

CERN QTI Knowledge Transfer  
IPT Department

*Please feel free to reach out to any and all the coordinators!*



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