

# **Data Science and Quantum Computing Workshop**

## **Report of Contributions**

Contribution ID: 7

Type: **not specified**

## Welcome

*Wednesday, 27 June 2018 09:00 (10 minutes)*

**Presenter:** Prof. DILLING, Jens (TRIUMF)

**Session Classification:** Opening

Contribution ID: 8

Type: **not specified**

## **Introduction to TRIUMF**

*Wednesday, 27 June 2018 09:10 (20 minutes)*

**Presenter:** Dr BAGGER, Jonathan (TRIUMF)

**Session Classification:** Opening

Contribution ID: 9

Type: **not specified**

## Introduction to Helmholtz

*Wednesday, 27 June 2018 09:30 (20 minutes)*

**Presenter:** MNICH, Joachim (DESY)

**Session Classification:** Opening

Contribution ID: **10**

Type: **not specified**

## **The EOSC Pilot and the Helmholtz Incubator**

*Wednesday, 27 June 2018 10:20 (20 minutes)*

**Presenter:** GÜLZOW, Volker (DESY)

**Session Classification:** Partner Programs

Contribution ID: 11

Type: **not specified**

## **Quantum Computing at ORNL . . . and Beyond**

*Wednesday, 27 June 2018 10:40 (20 minutes)*

**Presenter:** DEAN, David (Oak Ridge National Laboratory)

**Session Classification:** Partner Programs

Contribution ID: 12

Type: **not specified**

## **KEY SFU's Big Data Initiative**

*Wednesday, 27 June 2018 11:00 (20 minutes)*

**Presenter:** ROALD, Trevor (Simon Fraser University)

**Session Classification:** Partner Programs

Contribution ID: 13

Type: **not specified**

## **UBC Data Science Institute**

*Wednesday, 27 June 2018 11:20 (20 minutes)*

**Presenter:** SCHMIDT, Mark (University of British Columbia)

**Session Classification:** Partner Programs



Contribution ID: 14

Type: **not specified**

## **Institute for Quantum Computing - Waterloo**

*Wednesday, 27 June 2018 11:40 (20 minutes)*

**Presenter:** GHEORGHIU, Vlad

**Session Classification:** Partner Programs

Contribution ID: 15

Type: **not specified**

## **Canada's Digital Technology Supercluster –A catalyst for Digital Transformation in Canadian Industries**

*Wednesday, 27 June 2018 12:00 (20 minutes)*

**Presenter:** PRELAZZI, Dean

**Session Classification:** Partner Programs

Contribution ID: 16

Type: **not specified**

## **EOSC and the EOSC Pilot; a European View**

*Wednesday, 27 June 2018 15:10 (20 minutes)*

**Presenter:** FUHRMAN, Patrick (DESY)

**Session Classification:** Big Data & Platforms

Contribution ID: 17

Type: **not specified**

## **R&D for High Energy and Astroparticle Physics**

*Wednesday, 27 June 2018 15:30 (20 minutes)*

**Presenter:** GIFFELS, Manuel (Karlsruhe Institute of Technology)

**Session Classification:** Big Data & Platforms

Contribution ID: 18

Type: **not specified**

## **Westgrid / Compute Canada**

*Wednesday, 27 June 2018 14:50 (20 minutes)*

**Presenter:** SILL, Lindsay (WestGrid)

**Session Classification:** Big Data & Platforms

Contribution ID: 19

Type: **not specified**

## Quantum Computing Landscape

*Wednesday, 27 June 2018 15:50 (20 minutes)*

**Presenter:** SAMLI, Kausar (1QBIT)

**Session Classification:** Big Data & Platforms

Contribution ID: 20

Type: **not specified**

## Helmholtz Analytics Framework Project

*Thursday, 28 June 2018 09:00 (30 minutes)*

**Presenter:** GOETZ, Markus (Karlsruhe Institute of Technology)

**Session Classification:** The European Open Science Cloud and the Helmholtz Incubator

Contribution ID: 21

Type: **not specified**

# Applications of FairROOT

*Thursday, 28 June 2018 09:30 (20 minutes)*

**Presenter:** KOLLEGER, Thorsten (GSI)

**Session Classification:** The European Open Science Cloud and the Helmholtz Incubator



Contribution ID: 22

Type: **not specified**

## Quantum Computer Simulators / Quantum Computer User Facility JUNIQ

*Thursday, 28 June 2018 09:50 (30 minutes)*

**Presenter:** MICHELSEN, Kristel (Juelich)

**Session Classification:** The European Open Science Cloud and the Helmholtz Incubator

Contribution ID: 23

Type: **not specified**

## TRIUMF Innovations

*Thursday, 28 June 2018 10:50 (20 minutes)*

**Presenter:** Ms HAYASHI, Kathryn (TRIUMF Innovations)

**Session Classification:** TRIUMF

Contribution ID: 24

Type: **not specified**

## Examples from the Particle Physics Department

*Thursday, 28 June 2018 11:10 (20 minutes)*

**Presenter:** Dr STELZER-CHILTON, Oliver (TRIUMF)

**Session Classification:** TRIUMF

Contribution ID: 25

Type: **not specified**

## **Nuclear Physics at TRIUMF: Perspectives on applications of ML and QC**

*Thursday, 28 June 2018 11:30 (20 minutes)*

**Presenter:** Dr NAVRATIL, Petr (TRIUMF)

**Session Classification:** TRIUMF

Contribution ID: 26

Type: **not specified**

## Accelerator Division

**Presenter:** BAARTMAN, Richard (TRIUMF)

Contribution ID: 27

Type: **not specified**

# Deep Neural Network Applications for Particle Imaging Detectors

*Thursday, 28 June 2018 13:00 (20 minutes)*

**Presenter:** KAZUHIRO, Terao (SLAC National Accelerator Laboratory)

**Session Classification:** Machine Learning | Detailed Examples

Contribution ID: 28

Type: **not specified**

# Analyzing and Predicting Software Bugs with a Hidden Markov Model

*Thursday, 28 June 2018 13:20 (20 minutes)*

**Presenter:** STIBOR, Thomas (GSI)

**Session Classification:** Machine Learning | Detailed Examples

Contribution ID: 29

Type: **not specified**

# Machine Learning using Quantum Computing

*Thursday, 28 June 2018 13:40 (20 minutes)*

**Presenter:** ZAHEDINEJAD, Ehsan (1QBIT)

**Session Classification:** Machine Learning | Detailed Examples



Contribution ID: 30

Type: **not specified**

## Quantum magnetism on a chip

*Wednesday, 27 June 2018 13:30 (1 hour)*

Feynman's original vision for a quantum computer was of a physical quantum system whose Hamiltonian could be adjusted in situ to simulate the physics of a variety of other quantum systems. Quantum magnetic systems, with localized spins and short range interactions, are perhaps the simplest such physical quantum system that can be implemented in existing solid state technologies. This lecture will review how a D-Wave 2000Q quantum annealing processor, an ostensibly 2-dimensional circuit, can be used to realize phase transitions in the transverse field Ising model on a 3-dimensional lattice.

**Presenter:** HARRIS, Richard (D-WAVE)

**Session Classification:** TRIUMF Colloquium | D-WAVE Quantum Computing

Contribution ID: 31

Type: **not specified**

# The D-Wave Quantum Cloud Platform and Application Examples

*Thursday, 28 June 2018 14:00 (30 minutes)*

**Presenter:** BARATZ, Alan (D-WAVE)

**Session Classification:** Machine Learning | Detailed Examples

Contribution ID: 32

Type: **not specified**

# Quantum Computing for Nuclear Physics: Linear Response

*Thursday, 28 June 2018 14:50 (20 minutes)*

**Presenter:** CARLSON, Joseph (Los Alamos National Laboratory)

**Session Classification:** Quantum Computing | Detailed Examples

Contribution ID: 33

Type: **not specified**

# Tensor network and quantum computing challenges for high energy physics

*Thursday, 28 June 2018 15:10 (20 minutes)*

**Presenter:** JANSEN, Karl (DESY)

**Session Classification:** Quantum Computing | Detailed Examples

Contribution ID: 34

Type: **not specified**

# Quantum simulation of lattice gauge theories

*Thursday, 28 June 2018 15:30 (20 minutes)*

**Presenter:** MUSCHIK, Christine (University of Waterloo)

**Session Classification:** Quantum Computing | Detailed Examples

Contribution ID: 35

Type: **not specified**

## Quantum computation of the deuteron

*Thursday, 28 June 2018 15:50 (20 minutes)*

**Presenter:** MORRIS, Titus (Oak Ridge National Laboratory)

**Session Classification:** Quantum Computing | Detailed Examples

Contribution ID: 36

Type: **not specified**

## **Pursuing the Quantum Advantage for QCD**

*Thursday, 28 June 2018 16:10 (20 minutes)*

**Presenter:** SAVAGE, Martin (University of Washington)

**Session Classification:** Quantum Computing | Detailed Examples

Contribution ID: 37

Type: **not specified**

## Bus Departure



Contribution ID: **38**

Type: **not specified**

## **Dinner Cruise**

Contribution ID: 39

Type: **not specified**

## **Bus Return to TRIUMF**

Contribution ID: 40

Type: **not specified**

## Panel Discussion

*Friday, 29 June 2018 14:00 (30 minutes)*

**Presenter:** HELMHOLTZ, TRIUMF, D-WAVE, 1QBIT

**Session Classification:** CLOSING

Contribution ID: 41

Type: **not specified**

## **MOU**

*Friday, 29 June 2018 14:30 (20 minutes)*

**Session Classification:** CLOSING

Contribution ID: 42

Type: **not specified**

## MOU Signing

Contribution ID: 43

Type: **not specified**

## Closing Remarks

*Friday, 29 June 2018 14:50 (20 minutes)*

**Session Classification:** CLOSING

Contribution ID: 44

Type: **not specified**

## Reception

*Friday, 29 June 2018 15:10 (25 minutes)*

**Session Classification:** CLOSING

Contribution ID: 45

Type: **not specified**

# Protein design with hybrid quantum/classical algorithms

*Thursday, 28 June 2018 16:30 (20 minutes)*

**Presenter:** FINGERHUTH, Mark (ProteinQure)

**Session Classification:** Quantum Computing | Detailed Examples



Contribution ID: 46

Type: **not specified**

## Planning Slides

*Wednesday, 27 June 2018 08:00 (20 minutes)*

**Session Classification:** Registration Desk: Open 8:00 - 11:00