The Helmholtz – TRIUMF Cooperation on Scientific Computing

Large-scale Computing, Big Data and Artificial Intelligence, <u>Quantum Computing</u>

Scientific computing is a critical component of research in particle physics and other science areas. In recent years, the amount of data produced across the globe has increased exponentially at research facilities and private businesses alike. With rapid advances in large-scale computing, big data, machine learning, and quantum computing, these technologies are beginning to have serious implications on how we organize our scientific work and policies, and it is imperative that we take part and contribute to this quickly evolving field.

The Helmholtz Association is partnering with TRIUMF, the Canadian National Laboratory for sub-atomic physics, and with Canadian and German universities and selected businesses. A workshop on topics in scientific computing was hosted at DESY in Hamburg in September 2019, to develop further collaboration and to explore new tools in scientific computing.

This presentation reports especially about the activities in Quantum Computing at various Helmholtz Centers and at TRIUMF.

Prof. Dr. Kerstin Borras, Deutsches Elektronen-Synchrotron and RWTH Aachen University

HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

DESY.