Contribution ID: **15** Type: **Presentation**

The Case for Preserving Our Knowledge and Data in Physics Experiments

Friday 19 May 2017 11:20 (20 minutes)

Data from Particle Physics experiments are collected with significant financial and human effort and are mostly unique. Experiment data are maintained by personal effort of scientists until they are judged no longer worth that effort. The tools and knowledge to interpret the data are lost as the members of the experiment move on to other projects. When later discoveries or new hypotheses for beyond-the-Standard-Model Physics renew interest in this forgotten data, theorists resort to recasting previously published results. Often this requires either extrapolations and assumptions or the need to be overly conservative in the possible interpretations because the original data or input needed to understand the data have been lost. This imposes limits on the scientific reach of our data. This is particularly worrisome as new physics is suspected in an increasing number of possible directions.

During this presentation I will describe my two year experience working with the collaboration for Data Preservation for High Energy Physics (cern.ch/dphep). I will show that it is cost-efficient to warehouse data from completed experiments on tape archives of our national and international laboratories. These subject specific data stores also offer the technologies to capture and archive knowledge about the experiment in the form of technical notes, electronic logs, websites, etc. The computer centres of our laboratories also provide the infrastructure to archive our source code and computing environments through virtualization and container technology. In my presentation I will cover tools and technologies at our disposal for scientific data preservation, I will show that it is a cost-effective way of extending the scientific reach of our experiments, and I will relay my experiences and cover best practices in preserving data for the long term.

Primary author: BERGHAUS, Frank (University of Victoria)

Presenter: BERGHAUS, Frank (University of Victoria)

Session Classification: Session 16