

## **ALICE O2: The Upgrade of the ALICE Online and Offline Computing after 2018**

*Thursday 12 September 2013 09:30 (45 minutes)*

ALICE (A Large Ion Collider Experiment) is a heavy-ion detector studying the physics of strongly interacting matter and the quark-gluon plasma at the CERN LHC (Large Hadron Collider).

After the second long shutdown of the LHC, the ALICE apparatus will be upgraded in order to make high precision measurements of rare probes at low  $p_T$ , which cannot be selected with a trigger, and therefore require a large sample of events recorded on tape. The online computing system will sample the full 50 kHz Pb-Pb interaction rate increasing by a factor 100 the present limit and read out the detector at 1 TB/s.

This huge data volume will be reduced by an online reconstruction which will result in storing only the reconstruction results and discard the raw data. This system, demonstrated in production on the TPC data since 2011, and will have to be optimized for lossless compression and for the online usage of “offline” reconstruction algorithms. It implies a much tighter coupling between online and offline computing systems.

We present in this contribution the R&D program put in place to address this huge challenge and the first results of this program.

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