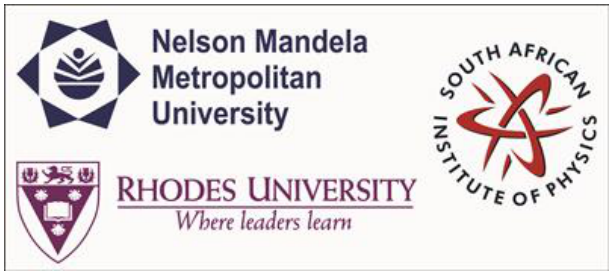

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Viability of map-reduce algorithms for the measurement of Higgs boson properties with the ATLAS detector at the LHC

Wednesday, 1 July 2015 16:10 (1h 50m)

Abstract content
   (Max 300 words)
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With the discovery of a Higgs boson in 2012 the focus has shifted towards the study of its properties and the search of new physics via the measurement of its couplings. This results in the manyfold increase of data volumes compared to those used for the discovery. This introduces significant overheads to data analyzers, reducing their efficiency in producing physics results. The problem of processing batch data collected during higgs to gamma gamma decay events is particularly suited to map reduce. The general algorithm followed during examination of such events is examined; the suitability of the map-reduce paradigm with regard to this specific problem is detailed; Hadoop, an open-source tool designed specifically for executing map-reduce programs on computer clusters, is described in brief; and an argument is made that Hadoop and its ecosystem are in general well-suited to a large class of computational problems within the domain of experimental high energy particle physics.

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Bruce Mellado Garcia
Bruce.Mellado.Garcia@cern.ch
Wits and CERN

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Primary author: Ms O'CONNELL, Sheena (University of the Witswatersrand)

Presenter: Ms O'CONNELL, Sheena (University of the Witswatersrand)

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