



Contribution ID: 215

Type: Poster

BuSca: A new software project for LLP searches at 30 MHz at LHCb

The new fully software-based trigger of the LHCb experiment operates at a 30 MHz data rate, opening a search window into previously unexplored regions of physics phase space. The BuSca (Buffer Scanner) project at LHCb acquires, reconstructs and analyzes data in real time, extending sensitivity to new lifetimes and mass ranges though the recently deployed Downstream tracking algorithm. BuSca identifies hotspots indicative of potential new particle candidates in a model-independent manner, providing strategic guidance for developing new trigger requirements. To control the background, regions with minimal detector material interactions are selected, and pairs of same-sign tracks are used to suppress combinatorial background. This talk presents the results from the analysis of the first data.

Significance

This presentation shows a novel approach based on software to increase the capabilities and physics reach of HEP experiments, in particular of LHCb for the detection of Long Lived Particles.

References

https://indico.cern.ch/event/1338689/contributions/6015415/

Experiment context, if any

LHCb experiment at LHC (CERN)

Authors: DE OYANGUREN CAMPOS, Arantza (Univ. of Valencia and CSIC (ES)); JASHAL, Brij Kishor (Rutherford appelton laboratory); ZHUO, Jiahui (Univ. of Valencia and CSIC (ES)); KHOLOIMOV, Valerii (Instituto de Física Corpuscular (Univ. of Valencia)); SVINTOZELSKYI, Volodymyr (Univ. of Valencia and CSIC (ES))

Presenter: KHOLOIMOV, Valerii (Instituto de Física Corpuscular (Univ. of Valencia))

Session Classification: Poster session with coffee break

Track Classification: Track 2: Data Analysis - Algorithms and Tools