ACAT 2021

Online reconstruction of long- and short-lived particles in the STAR experiment

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Within the FAIR Phase-0 program the algorithms of the FLES (First-Level Event Selection) package developed for the CBM experiment (FAIR/GSI, Germany) are adapted for online and offline processing in the STAR experiment (BNL, USA).
Long-lived charged particles are reconstructed in the TPC detector using the CA track finder algorithm based on the Cellular Automaton. The search for short-lived particles is performed by the package of algorithms KF Particle based on the Kalman Filter using the reconstructed long-lived daughter particles produced in the decays of the searched short-lived mother particles.
As a result of adapting the algorithms to work online, an express data production chain was created based on the STAR HLT farm, that extends the HLT functionality in real time up to the physics analysis. An important advantage of the express analysis is that it allows to start calibration, production and analysis of the data as soon as they are received.
The specific features of the reconstruction algorithms and the express data production chain are given, as well as some results of the express analysis of STAR BES-II data of the year 2021 are discussed.