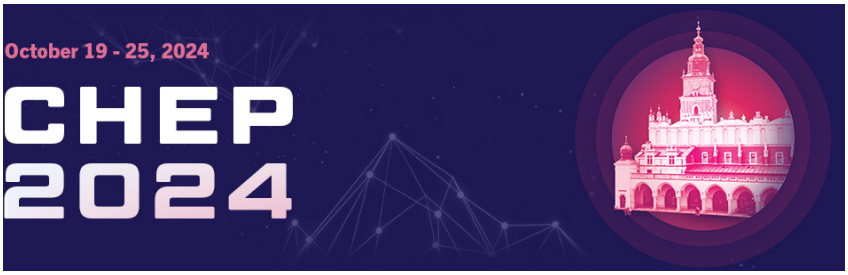

Contribution ID: **311** Type: **Talk**

ALICE Event Display - from the legacy ROOT-based visualization to the web-based application

Tuesday 22 October 2024 14:24 (18 minutes)

The architecture of the existing ALICE Run 3 on-line real time visualization solution was designed for easy modification of the visualization method used. In addition to the existing visualization based on the desktop application, a version using browser-based visualization has been prepared. In this case, the visualization is computed and displayed on the user's computer. There is no need to install any software on the user's computer. The overall visualization architecture used allows for a smooth switch to a new version of visualization: for a transition period both solutions (traditional desktop and web) can be used simultaneously.

ALICE visualization requires loading information about the displayed tracks (which may be several dozen thousand). This type of visualizations differs from visualizations typically used in computer graphics, where high efficiency of motion representation is achieved by modifying transformations describing the motion of already loaded models. In event visualization, the description of the tracks (models) changes with each view. Achieving high display performance requires the use of a number of optimization solutions.

The data downloaded by the web application is already pre-processed and prepared to be loaded to the graphics card, thanks to which the calculations in the browser are significantly simplified and the performance of the browser visualization is comparable to the visualization in the desktop application.

When creating a new visualization, a component approach to building a web application was used: individual components are responsible for various functions (e.g. data retrieval, different visualizations, interaction with the user). This construction of blocks allows for easy rearrangement by replacing or adding new components. The solution testing process is therefore significantly simplified because each component can be tested independently.

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