

The use of new methods for processing data of a physical experiment.  
Application of machine learning methods on the NICA complex.

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## Fast simulation for forward hadronic calorimeters

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Forward hadronic calorimeters are used in HI experiments to determine centrality and reaction plane. To understand the response and calculate systematic uncertainties a large amount of simulated data has to be produced. However a GEANT4 simulation of hadronic calorimeters may take as much time as of the whole detector if the calorimeter was hit by a large fraction of nucleon spectators due to origination of many hadronic showers.

I would like to present the solution which was developed for the NA61/SHINE experiment at SPS CERN. It is a stand alone application based on fitted single nucleon responses, which allows practically instantaneous generation of a calorimeter response even for Pb+Pb collisions. SHINE is a fixed target experiment at SPS CERN. It has a hadronic calorimeter (PSD) which also plays a role of a beam dump. This detector has a very similar structure as the MPD's FHCAL.

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**Primary author:** SERIAKOV, Andrey (St Petersburg State University (RU))

**Presenter:** SERIAKOV, Andrey (St Petersburg State University (RU))