

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

Contribution ID: 2

Type: **not specified**

What Machine Learning Can Do for a Focusing Aerogel Detectors

Tuesday, 29 August 2023 10:00 (30 minutes)

Reliable particle identification is a crucial component of modern physics experiments. The use of a Focusing multilayer Aerogel Ring Imaging Cherenkov detector FARICH is under intensive discussion for the SPD detector at NICA. The detector may use both seedless real-time signal finder to produce fast trigger and mitigate noise background, and seeded off-line reconstruction mode for precise identification.

In this presentation we demonstrate our approach to filtering signal hits in the FARICH detector. The approach is inspired by object detection techniques for computer vision. Several ML based approaches to the FARICH reconstruction problem in different settings are also discussed.

Primary authors: BARNIAKOV, Alexander (Novosibirsk State University (RU)); RATNIKOV, Fedor (Yandex School of Data Analysis (RU)); SHIPILOV, Foma (HSE University (RU)); KONONOV, Sergey (Budker Institute of Nuclear Physics (RU))

Presenter: SHIPILOV, Foma (HSE University (RU))