



Contribution ID: 467

Type: **Poster Presentation**

Application of Convolutional Neural Networks for Pile up correction in single particle counting

Monday 8 September 2025 16:00 (2 hours)

An exploration into the application of machine learning (ML) approaches to identify pile-ups and correct them in single particle counters at the GSI Helmholtz Centre for Heavy Ion Research is presented. About 100000 particle pulse data from various spills were manually labelled and a convolutional neural network (CNN) was developed to accurately count the number of particles without domain-specific knowledge. This contribution represents proof-of-work for a fast error free automated particle counting system. The identified algorithm was developed with a perspective of implementation into an FPGA.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

Author: HABERMANN, Tobias (Fulda University of Applied Sciences)

Co-authors: Prof. KUMM, Martin (Fulda University of Applied Sciences); BOUTACHKOV, Plamen (GSI Helmholtz Centre for Heavy Ion Research); SINGH, Rahul (GSI Helmholtz Centre for Heavy Ion Research)

Presenter: HABERMANN, Tobias (Fulda University of Applied Sciences)

Session Classification: MOP

Track Classification: MC08: Machine Parameter Measurements