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A 1D CNN Algorithm for Low Background β Detection with Time Projection Chamber

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This study investigates the application of machine learning in the realm of low background β detection and identification. Leveraging Convolutional Neural Network (CNN) algorithms, the research involves complex waveform data generated by the Charge-Sensitive-Amplification (CSA) electronic system within the TPC detector. The experimental results demonstrate outstanding performance in actual measurement datasets for low background β detection, effectively filtering out β background events. This investigation not only presents a viable approach for particle identification in TPC detectors through machine learning but also emphasizes the significance and potential applications of machine learning methods in contrast to traditional background rejection techniques within particle physics research.

Minioral

Yes

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No

Are you a student?

Yes

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