

Denoising of p-type point contact (PPC) HPGe detector signals with generative adversarial networks

High-purity germanium (HPGe) detectors are used in rare event searches such as neutrinoless double-beta decay, dark matter, and other beyond Standard Model physics. An efficient signal denoising algorithm can help advance these searches by improving energy resolution and background rejection techniques and allowing for the identification of low-energy signal events.

We present a machine learning based algorithm using generative adversarial networks (GAN) to reduce electronic noise in the charge pulses from a PPC HPGe detector.

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