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GAN-based simulation of microstrip triple GEM detector in the BM@N experiment

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The triple GEM detector is one of the basic components of the hybrid tracking system in the BM@N experiment. It consists of gas chambers located along the beam axis, designed to register particles passing through matter in the form of responses on a microstrip readout plane. The presented work describes the features of detector response simulation and considers a method for this simulation using Generative-Adversarial Networks (GAN). A comparative analysis is provided between the proposed generative model and a previously developed parametric signal generation method. Particular attention is paid to data preparation for network training, as well as the formation of feature vectors for Conditional GAN (C-GAN).

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