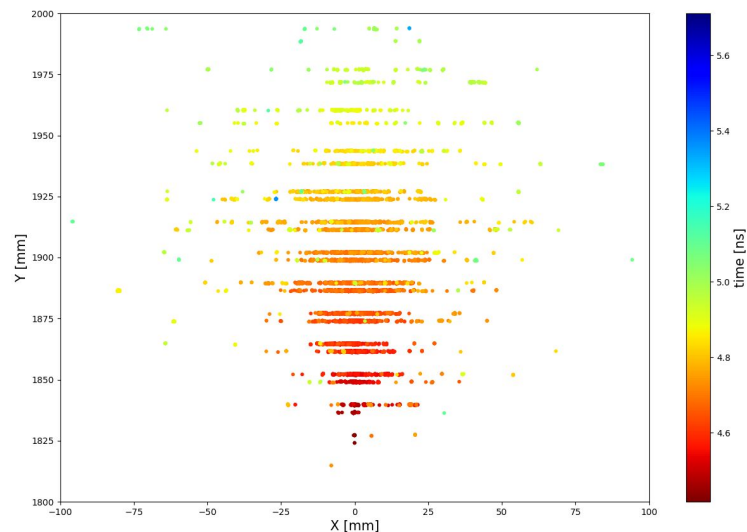
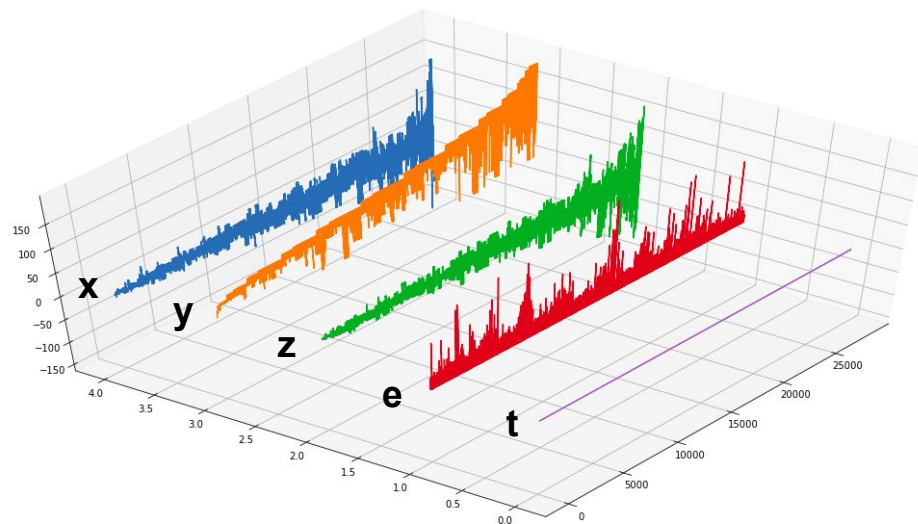


GAN on 1D Showers

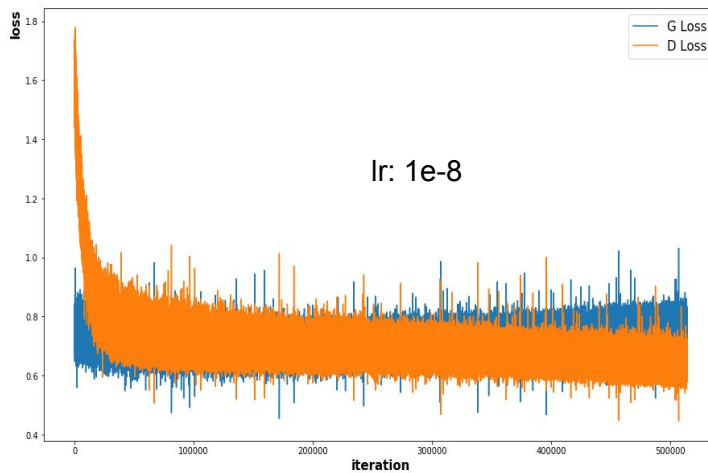
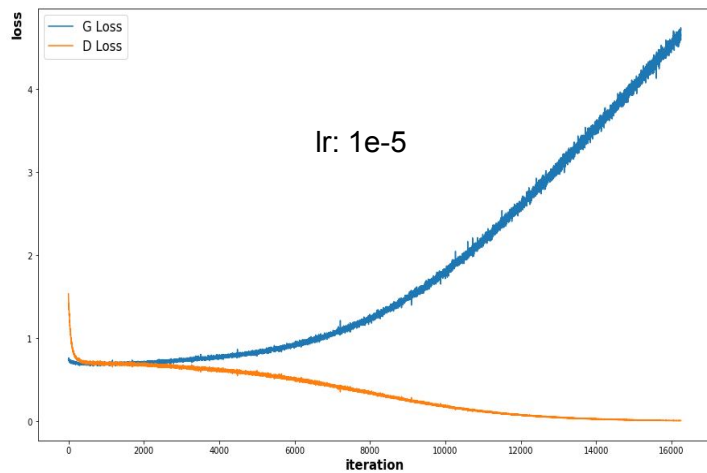
Data

- Considering the shower as a sequence of (x, y, z) coordinates and the hit energy of the all MC interactions, sorted with respect to the time of the hit.



Training Attempts

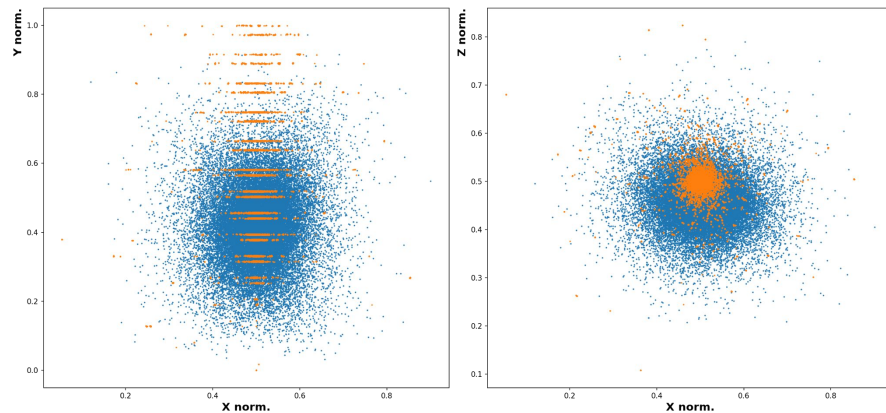
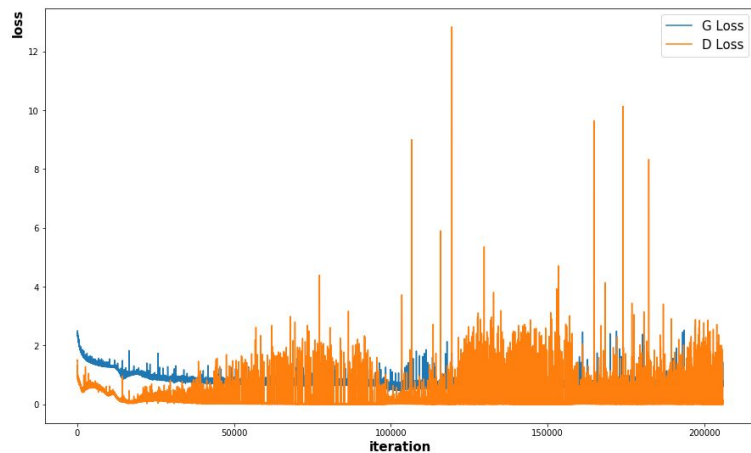
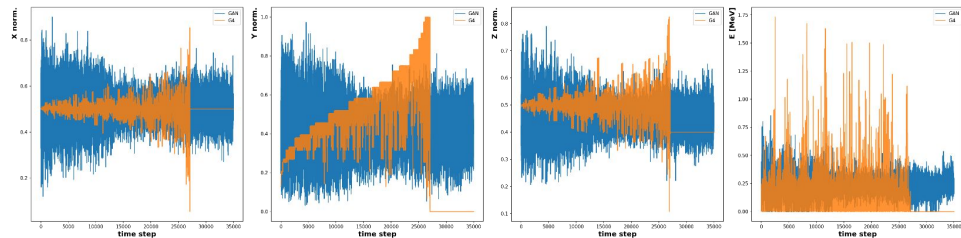
- BCELoss
- Normalized coordinates



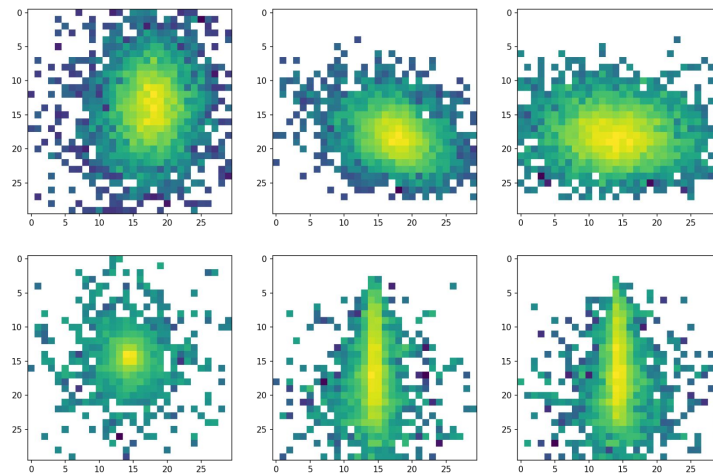
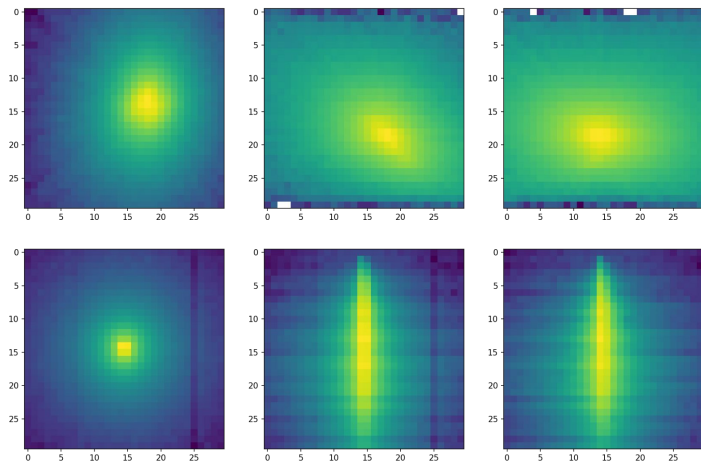
All attempts collapsed

Training Attempts

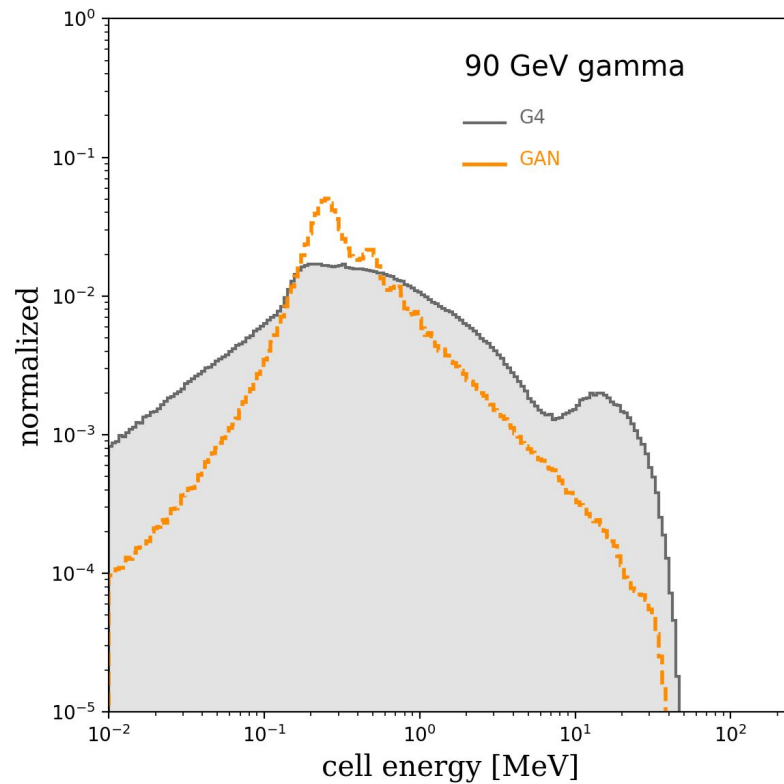
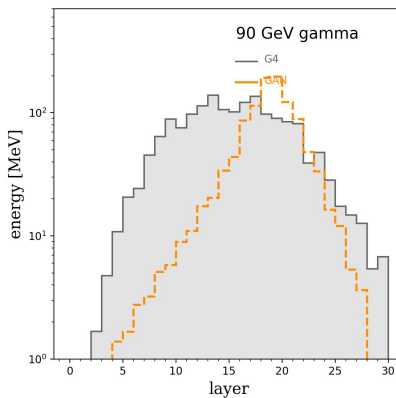
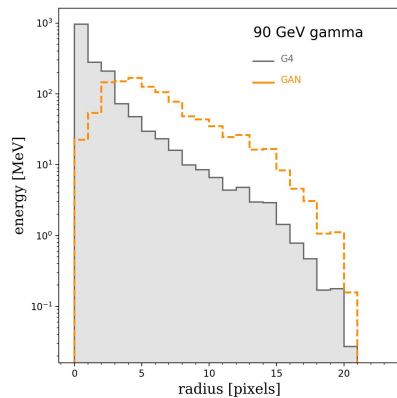
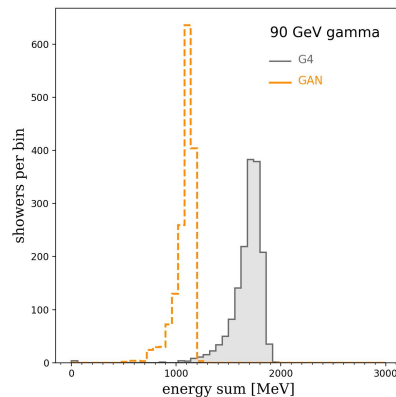
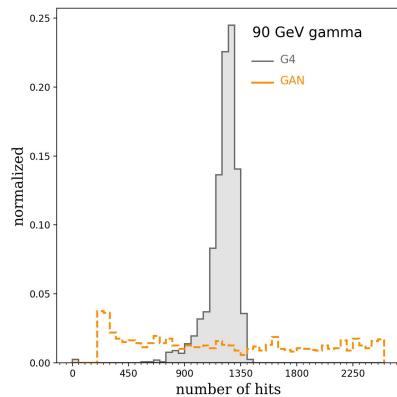
- BCELoss for Discriminator
- MSELoss between latent representation of real and generated showers
- Normalized coordinates



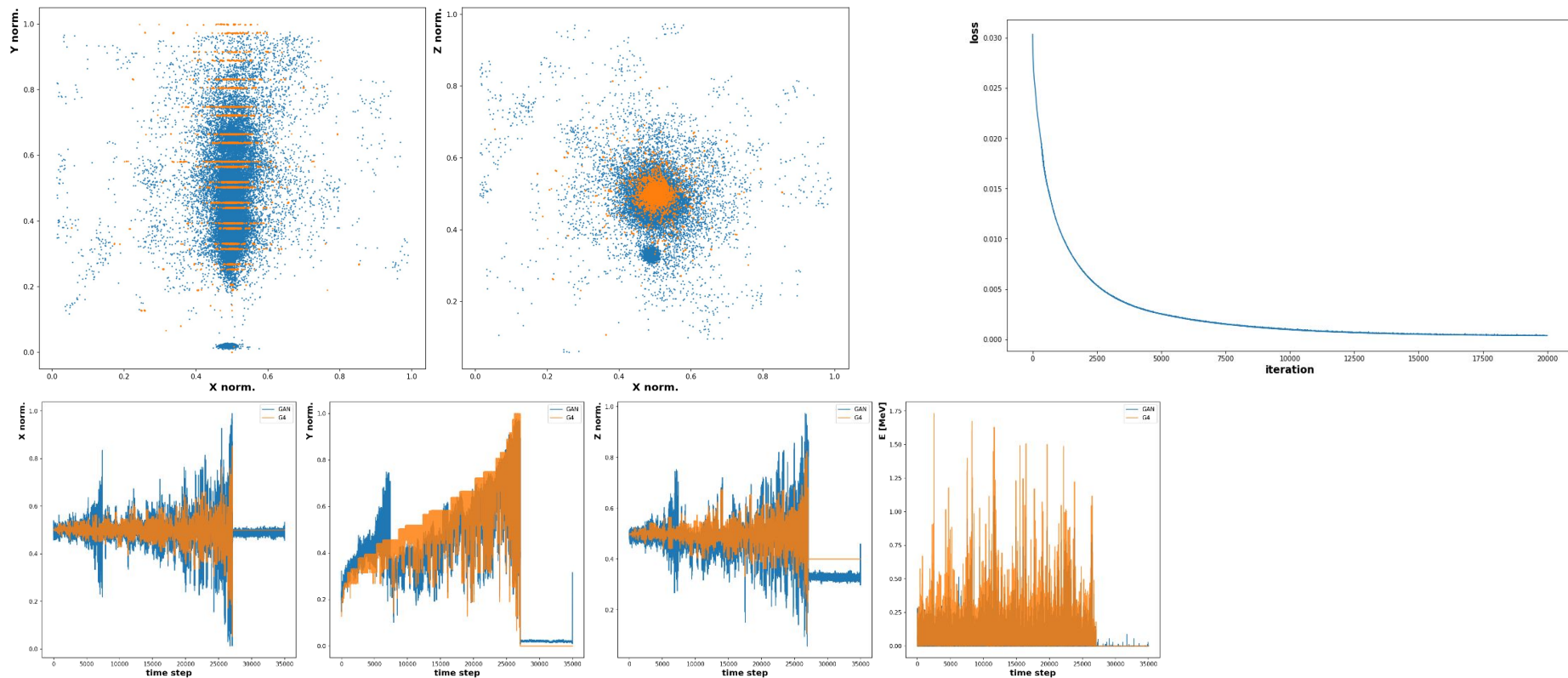
Shower Examples



Distributions Check



Overfitting Single Event



- Fixed \mathbf{Z} vector, $\text{MSELoss}(\mathbf{x}, \mathbf{x}')$