

Deep learning in Monte Carlo simulation of neutrino-matter interactions and studies of porous media properties

Deep learning (DL) techniques have become a crucial tool in various areas of physics, assisting in the acceleration and optimization of computational systems. DL algorithms enable the discovery of new relations and phenomenological laws. In my presentation, I will discuss two physics problems our team is working on. Firstly, we aim to develop an AI-supported version of NuWro, a Monte Carlo generator of events used to simulate neutrino interactions with atomic nuclei in the energy range typical for long and short-base line oscillation experiments. Secondly, we will discuss our work on developing DL techniques to study fluid flow and diffusion properties in porous materials. My talk is based on three publications: arxiv:2312.17298, arxiv:2308.13222, and Sci Rep 13, 9769 (2023).

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References

arxiv:2312.17298, arxiv:2308.13222, and Sci Rep 13, 9769 (2023)

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