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Nuclear data generation using machine learning

We have developed a method to generate nuclear data using Gaussian process regression (GPR) [1], which is one of the machine learning techniques. This method generates nuclear data by treating measured data as the training data in machine learning. GPR is based on nonparametric Bayesian inference, the generated nuclear data are expressed as a predictive distribution including uncertainty information. In this presentation, the basics of the Gaussian process model, some examples of the application to nuclear data generation, and other related topics will be presented.

[1] H. Iwamoto, "Generation of nuclear data using Gaussian process regression", Journal of Nuclear Science and Technology, 50:8, 932-938 (2020).

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