

# Improving nuclear cross-sections with deep learning: DINo algorithm

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The DINo (Deep learning Intelligence for Nuclear reactiOns) algorithm is a deep neural network designed to improve predictions of nuclear reaction cross-sections, crucial for applications like particle therapy in cancer treatment. Trained on TENDL 2021 data, DINo significantly outperforms traditional models, especially for proton-carbon interactions, achieving better agreement with experimental data. It is efficient, delivering predictions within microseconds, and demonstrates strong generalization, even in data-scarce energy ranges. DINo holds promise for real-time applications and future extension to a broader range of nuclear reactions.

**Presenter:** GESSON, Lévana

**Session Classification:** Evaluations