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Machine Learning for Prediction of Unitarity and Bounded from Below Constraints

The machine learning techniques to predict unitarity and bounded from below (BFB) constraints in multiscalar models is employed. The effectiveness of this approach is demonstrated by applying it to the two and three Higgs doublet models, as well as the left-right model. By employing suitable neural network architectures, learning algorithms, and carefully curated training datasets, a significantly high level of predictivity is achieved. Machine learning offers a distinct advantage by enabling faster calculations compared to alternative numerical methods, such as scalar potential minimization. This research investigates the feasibility of utilizing machine learning techniques as an alternative for predicting these constraints, offering potential improvements over traditional numerical calculations.

Collaboration / Activity

Theory, phenomenology

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Track Classification: Searches for New Physics