Exploring Line Bundle Standard Models with Transformers

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Abstract

We propose a Transformer based Reinforcement Learning Explorer (LB-Explorer) to search for heterotic standard models compactifying on smooth Calabi-Yau (CY) threefolds in the presence of Abelian internal gauge fields. We test the LB-Explorer environment on compactifications of $E_8 \times E_8$ heterotic string theory on complete intersection Calabi − Yau (CICY s) manifolds to realize models with $SU(5) \times S(U(1)^5)$ symmetry whose $SU(5)$ can be further broken to M

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