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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 27 Mars 2025, 11:30

Per Berglund

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Physical Yukawa Couplings in Heterotic String Compactifications

Calabi-Yau compactifications of the $E_8 \times E_8$ heterotic string provide one way of obtaining the four-dimensional particle physics described by the Standard Model. While the topology of the Calabi-Yau space determines the overall matter content in the low-energy effective field theory, further details of the compactification geometry are needed to calculate the normalized physical couplings and masses of elementary particles. We present novel numerical techniques, including machine learning, for computing physically normalized Yukawa couplings in several heterotic models using the standard embedding. We observe that the results produced are in excellent agreement with the expected values.

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