Testing F-theory GUTs and the heterotic string with axions

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Abstract

The topological nature of axion couplings to gauge bosons offers unique opportunities to obtain information about the UV limit of the SM. The coupling to photons is particularly important experimentally. I will discuss why the discovery of an axion-like particle above the QCD line would rule out 4d grand unified theories, the perturbative heterotic string, and F-theory GUTs.

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