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# Hierarchical structure of physical Yukawa couplings from matter field Kaehler metric

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We study the impacts of matter field Kaehler metric on physical Yukawa couplings in string compactifications. Since the Kaehler metric is non-trivial in general, the kinetic mixing of matter fields opens a new avenue for realizing a hierarchical structure of physical Yukawa couplings, even when holomorphic Yukawa couplings have the trivial structure. The hierarchical Yukawa couplings are demonstrated by couplings of pure untwisted modes on toroidal orbifolds and their resolutions in the context of heterotic string theory with standard embedding. Also, we study the hierarchical couplings among untwisted and twisted modes on resolved orbifolds.

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