Contribution ID: **145** Type: **not specified**

From stringy vacua with particle physics spectrum to the effective action - exemplified by a non-factorisable orientifold -

Thursday 24 May 2018 12:00 (30 minutes)

For most string vacua, only the chiral matter spectrum can be computed in terms of topological data of the compact extra dimensions, while already the vector-like spectrum remains elusive. If the compact extra dimensions consist of (orbifolds of) tori, however, the string quantisation can be explicitly performed and thus not only the full tower of massless and massive matter states can be computed but also exact results on the effective action beyond the leading SUGRA approximation can be derived. In particular, the one-loop corrections to the gauge couplings generically depend on the moduli of the compact extra dimensions, challenging the separation of gravity and QFT sectors at tree-level. In this talk, I will demonstrate these features in terms of a Pati-Salam model constructed on D-branes in a non-factorisable orientifold background.

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Session Classification: Plenary Session