



Contribution ID: 73

Type: **not specified**

## The Standard Model Quiver in de Sitter String Compactifications

*Friday 27 August 2021 22:55 (20 minutes)*

With the advent of the string landscape, the realisation of the Standard Model in general string theory compactifications to 4D has become a primary focus. This talk concerns novel constructions of the Standard Model in global set-ups of type IIB Calabi-Yau compactifications. We argue that the Standard Model quiver can be embedded into compact Calabi-Yau geometries through orientifolded D3-branes at del Pezzo singularities  $dP_n$  with  $n \geq 5$  in a framework including moduli stabilisation. To illustrate our approach, we explicitly construct a local  $dP_5$  model via a combination of Higgsing and orientifolding. This procedure reduces the original  $dP_5$  quiver gauge theory to the Left-Right symmetric model with three families of quarks and leptons as well as a Higgs sector to further break the symmetries to the Standard Model gauge group. We embed this local model in a globally consistent Calabi-Yau flux compactification with tadpole and Freed-Witten anomaly cancellations. The model features closed string moduli stabilisation with a de Sitter minimum from T-branes, supersymmetry broken by the Kähler moduli, and the MSSM as the low energy spectrum. We further discuss phenomenological and cosmological implications of this construction.

**Authors:** SCHACHNER, Andreas (Cambridge University); QUEVEDO, Fernando (University of Cambridge); GARCÍA ETXEBARRIA, Iñaki (Durham University); CICOLI, Michele (Università di Bologna); CICOLI, Michele (INFN - National Institute for Nuclear Physics); Dr SHUKLA, Pramod; Dr VALANDRO, Roberto

**Presenter:** SCHACHNER, Andreas (Cambridge University)

**Session Classification:** New Developments in String Theory

**Track Classification:** New Developments in String Theory