Contribution ID: **108** Type: **Parallel session talk**

# New families of scale separated vacua

*Thursday, 27 June 2024 15:45 (15 minutes)*

Scale separation is the important phenomenological property for a given vacuum to have an internal compact space much "smaller" than the extended spacetime, so that a lower-dimensional effective description indeed makes sense. At a practical level, this is measured by the decoupling or not of the magnitude of the cosmological constant from the Kaluza-Klein scale. The status of scale separation in AdS vacua obtained from string theory is under debate. On the one hand bottom-up constructions in type IIA string theory seem to achieve this hierarchy of scales parametrically. However on the other hand some Swampland arguments as well as holographic considerations cast a pessimistic shadow on scale separation and about its presence in the Landscape. After a brief overview of the evolution of scale separation in string theory over the last twenty years, I will present new families of scale separated vacua obtained via a 4d EFT analysis in massless type IIA flux compactifications on elliptic fibrations with metric fluxes. Parametric scale separation is achieved by an asymmetric flux rescaling which, however, in general is not a simple symmetry of the 4d equations of motion. At this level of approximation the vacua are stable but, unlike in the Calabi-Yau case, they display a non-universal mass spectrum of light fields.

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**Session Classification:** Parallel session