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Theory meets Experiment

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Supersymmetric gravitational EFTs and the Swampland

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There have been numerous recent attempts to elucidate the precise role that the Species Scale plays within quantum gravity, and more generally when trying to characterize the universality class of IR effective field theories (EFT) that descend from a consistent gravitational framework. In this talk we discuss some progress towards the understanding of the Species Scale as the UV cut-off controlling the gravitational EFT expansion, by a careful inspection of several supersymmetric String Theory constructions. The behaviour found is tightly related with the duality web of the theory, and it can even provide interesting insights about the moduli dependence of generalized Wilson coefficients which are not protected by supersymmetry. If time allows, we will also report on an intriguing pattern that such gravitational energy scale seems to fulfil in all known infinite distance/weak coupling corners of the theory.

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