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Astrophysical aspects of string compactifications

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A generic aspect of effective field theories coming from string compactifications is the appearance of moduli fields. Among these moduli, the axion and dilaton are present at low energies as (pseudo-)Goldstone bosons from the spontaneous breaking of an exact (or approximate) global symmetry. These moduli have a different microscopic coupling to matter but appear kinetically coupled in such a way that their interaction can compete with gravity at low energies and have an important effect in strong gravity environments. In this talk, we will discuss some of the astrophysical implications of a stringy-inspired multi-scalar-tensor theory. In particular, we show numerically the existence of a screening mechanism that reduces the Brans-Dicke dilaton coupling to macroscopic matter sources such as a neutron star.

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