

Discovering the Axiverse via Fifth Forces

If the Universe is described by string theory or other extensions of the Standard Model, several light, axion-like states are predicted to exist. However, most experiments only search for one of these states. We show that searches for fifth forces can't assume a non-relativistic potential induced by a single axion field. We discuss the strength of the non-relativistic spin-dependent and spin-independent potentials in the most general case of N_a different axions and show how the shape of the potentials can be used to distinguish between different axiverse scenarios.

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