

New Coupling Constrains on Light Bosons Beyond the Standard Model

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Searches for anomalous spin- and velocity-dependent forces (SVDF) have drawn considerable attention in the past few decades. Various theories beyond the Standard Model predict very light, weakly coupled scalar, pseudo- scalar, vector, or axial-vector bosons. Because of their weakly coupling, they could escape detectors, and not founded in normally high energy experiments. The coupling strengths have be constrained by astrophysics, cosmology, and laboratory experiments. We proposed a new method to constrain the coupling constants of $g_V g_A$ and g_A^2 by using polarized ^3He gas. A record constrain was achieved by using the new method.

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