

Recent advances in the search for a leptophobic boson at GlueX

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Abstract.

A compelling dark-force scenario introduces a new $U(1)_B$ gauge symmetry coupling to baryon number. A search for a leptophobic boson has been performed at GlueX in its main decay channels taking advantage of the direct photoproduction mechanism. A bump hunt strategy has been extended to cover a wide unexplored region of the (M_B, α_B) plane where all previous experiments could not set limits. The data collected at GlueX provided a significant contribution to this search, which also motivates other similar BSM searches at Jefferson Lab.

Keywords: BSM, leptophobic B boson, baryon number, VMD, photoproduction, Jefferson Lab, GlueX, bump hunt.