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Hidden Photons in beam dump experiments

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Recently there has been much interest in hidden sectors with light extra $U(1)$ gauge bosons, so called hidden photons. On the theoretical side, scenarios of that kind are well motivated as a common feature of physics beyond the Standard Model like string theory and SUSY. Because of their possible connection with dark matter they received further attention also from a phenomenological point of view triggered by different astrophysical anomalies and dark matter direct detection claims. In this talk, limits on hidden photons from past electron beam dump experiments will be shown including two new limits from such experiments at KEK and Orsay that have so far not been considered. In addition, the features of an extension to a simple supersymmetric hidden sector model with a viable Dark Matter candidate are presented.

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