

Constraints on dark photon dark matter using gravitational wave detector data

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Dark photons with masses in the range of $1e-14$ — $1e-11$ eV could interact with the optical components of the gravitational-wave detectors, producing a potentially detectable stochastic and narrow-band signal. In this talk, I will present methodologies and results for a recent dark photon search carried out using the data collected in the third observing run of Advanced LIGO and Virgo. Although no signal has been detected, interesting constraints on the coupling of dark photons to baryons have been obtained, surpassing limits obtained in direct dark matter detection experiments over a significant range of dark photon masses. Prospects for future searches using gravitational-wave detectors will also be discussed.

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