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Visible Dark Photon Flashes from Neutron Star Mergers

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In this talk I discuss how dark photons can produce bright observable flashes during binary neutron star mergers (BNS). Dark photons are a new massive vector field that kinetically mixes with the photon, and through this mixing interacts with charged standard model matter. It provides one of the three renormalizable portals between the Standard Model (SM) and dark sectors, which are by definition not charged under the standard model gauge group. The hot, dense conditions immediately after a BNS can produce a large flux of dark photons which escape the merger and decay to standard model particles, producing a bright, isotropic gamma-ray signal.

Summary

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