

# Colliding light to make dark matter at the LHC

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Dark matter is mysterious because it doesn't interact with light. How remarkable it would be if we made it in the lab by colliding light. Electromagnetic fields surrounding protons at the LHC source the world's highest energy beam of photons. Interestingly, the photon-photon collision rate is sufficiently high for pair production of new heavy states such as supersymmetric particles decaying to dark matter. Importantly, the protons remain intact and can be tagged using recently installed Roman Pot detectors, allowing complete initial state and missing momentum 4-vector reconstruction. This proposal opens a new class of dark matter search at accelerators with sensitivity to current blind spots that excitingly could be realised with today's dataset. Based on Phys. Rev. Lett. 123 (2019) 141801

## Secondary track (number)

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