

# Light Dark Photon Detection with Atomic Transitions

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We propose to improve light-shining-through-wall setup by employing macro coherent super radiance on the detection side. Parahydrogen molecules are pumped to their first excited states by counter-propagating laser beams. The background dark photon field will interact with the parahydrogen and trigger the collective deexcitation of the atomic system, resulting in a nonlinear amplification of the two-photon emission process called superradiance. With the superradiant amplification the current bound on sub-meV mass dark photon can be advanced by orders of magnitude.

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## **Please select: Experiment or Theory**

Theory

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