

# Hidden photons in Aharonov-Bohm-type experiments

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## Abstract

We discuss the Aharonov-Bohm effect in the presence of hidden photons kinetically mixed with the ordinary electromagnetic photons. The hidden photon field causes a slight phase shift in the observable interference pattern. It is then shown how the limited sensitivity of this experiment can be largely improved. The key observation is that the hidden photon field causes a leakage of the ordinary magnetic field into the supposedly field-free region. The direct measurement of this magnetic field can provide a sensitive experiment with a good discovery potential, particularly below the  $\sim$ meV mass range for hidden photons..