ABSTRACT

Two-photon interference due to the HOM experiment is analysed via the second-order correlation function. Photon representation constructed with consideration to the Gaussian temporal mode function. The resultant function is graphed to determine if it has the presence of the quantum beat as the frequency difference between the two photons is varied. The is then integrated over all possible detection times and detection delays to determine the probability distribution of measuring two photons. Photon frequency is again varied to determine its effect on the presence of the HOM dip. The presence of the quantum beat, along with a difference in the HOM dip due to change in frequency is used as a Hallmark of indistinguishability in the incident photons.

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