

# Spectral correlation measurement in Hong-Ou-Mandel interference between two independent sources

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Hong-Ou-Mandel (HOM) interference between independent photon sources (HOMI-IPS) is the fundamental block for quantum information processing. All the previous HOMI-IPS experiments were carried out in time-domain, however, the spectral information during the interference was omitted. Here, we investigate the HOMI-IPS in spectral domain using the recently developed fast fiber spectrometer, and demonstrate the spectral distribution during the HOM interference between two heralded single-photon sources, and two thermal sources. This experiment not only can deepen our understanding of HOMI-IPS from the viewpoint of spectral domain, but also presents a tool to test the theoretical predictions of HOMI-IPS using spectrally engineered sources. Figure 1 shows the experimental setup and Fig.2 shows the experimentally measured joint spectral distribution at different delay positions [1-3].

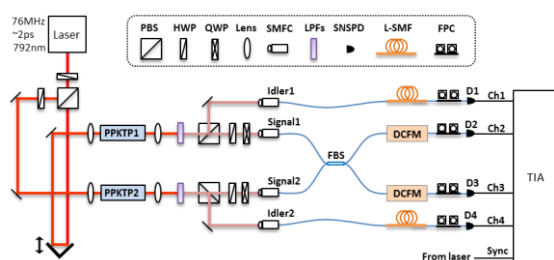


Fig. 1: The experimental setup

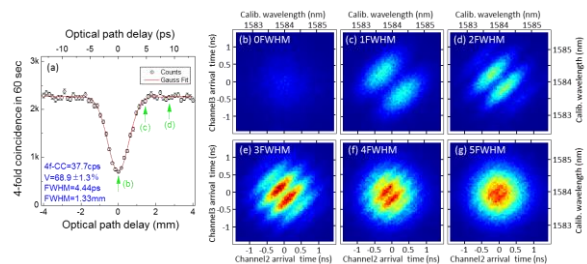


Fig. 2: The experimental results

## Reference:

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