
Off-axis holography with undetected light

Overview

General description of the service:

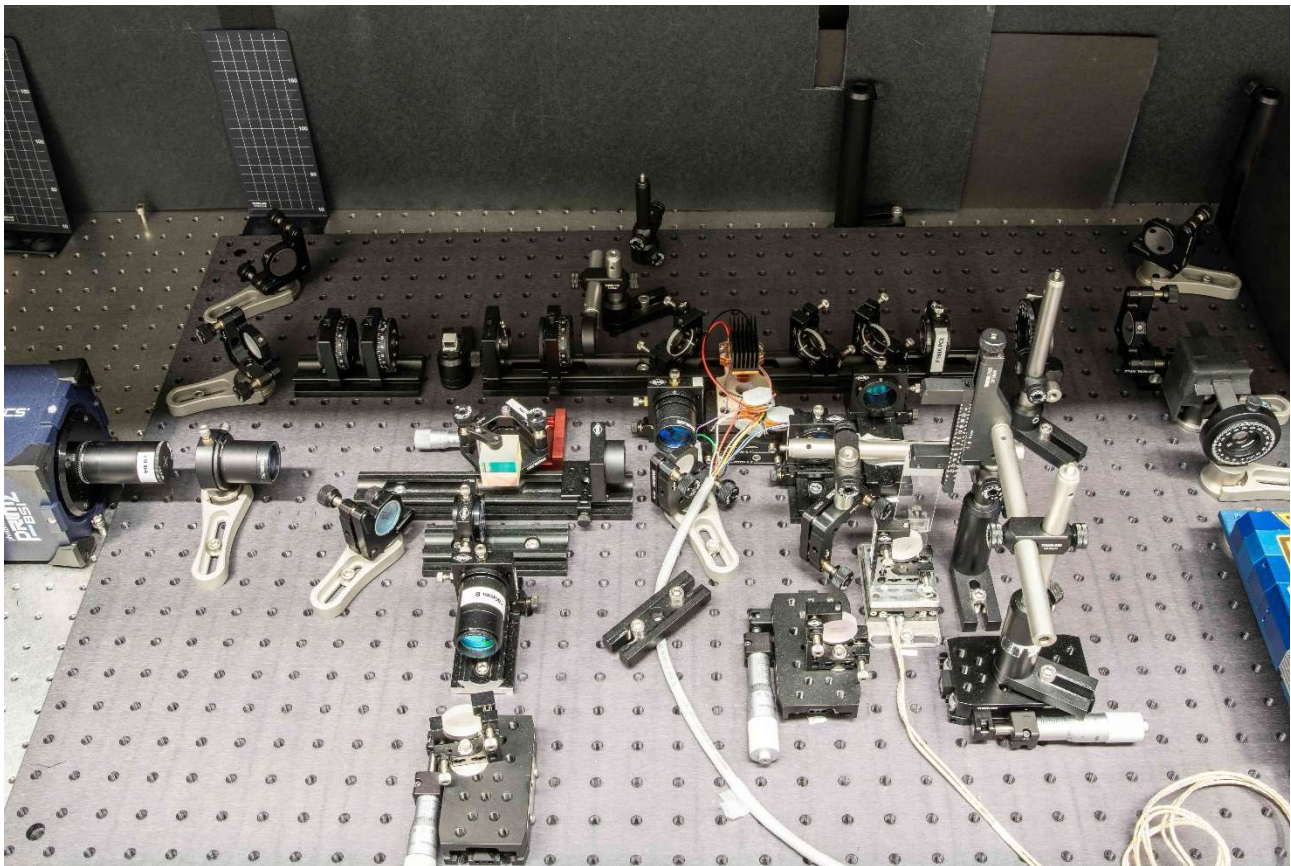
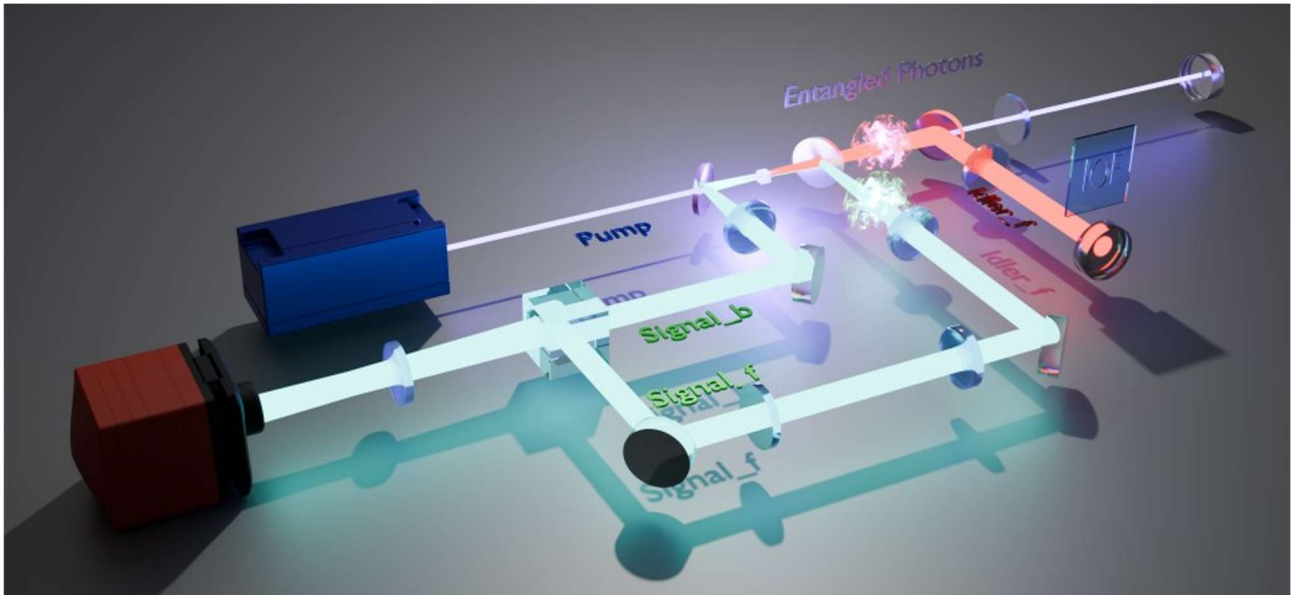


Fig. 1 Sketch (above) and the prototype (below) of the experimental setup: a 2 mm long ppKTP non-linear crystal is pumped by a 405 nm CW laser, it generates a photon pair in the forward and backward direction, signal and idler beams at 910 nm (cyan beam) and 730 nm (red beam), respectively.

The main results:

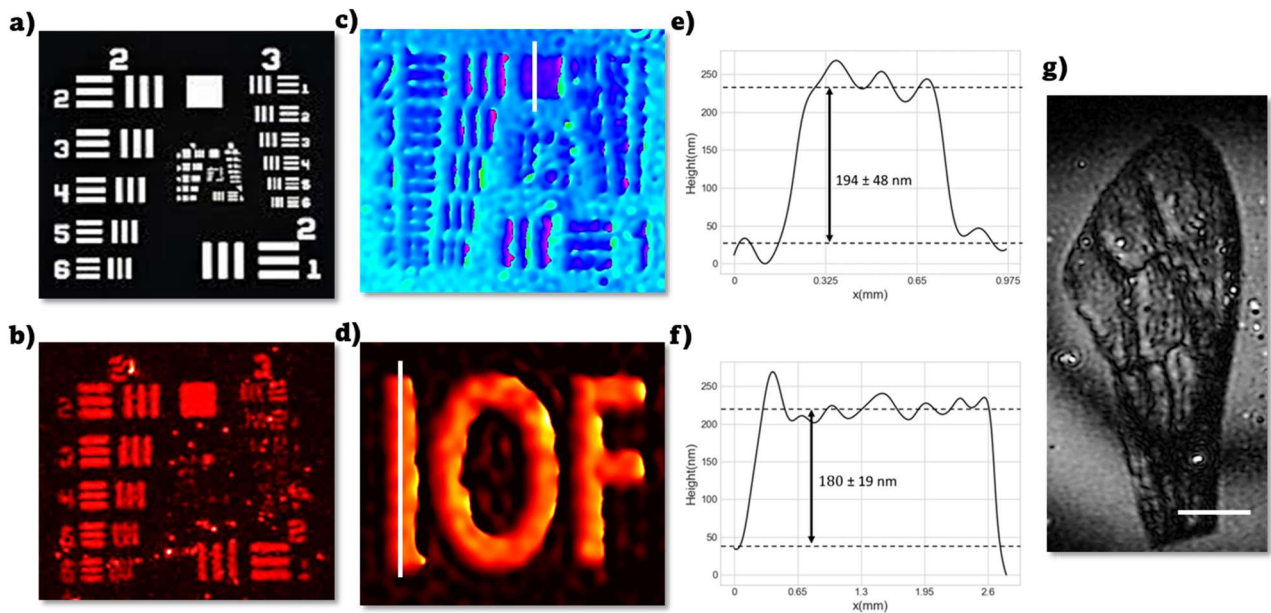


Fig. 2 Imaging capabilities of off-axis holography with undetected photons, a) image of the standard 1951 United States Air Force (USAF) resolution target, b) amplitude image of the USAF target. c) Phase image of the USAF phase object, d) phase image of the glass plate with engraved IOF letters. e) and f) height profile of the USAF and IOF phase objects taken corresponding to the features with white lines of c) and d) respectively. g) Amplitude image of a fly-wing, the white bar has a length of 1.6 mm.

Field of Application and applied technology

Wide-field imaging, quantitative phase imaging.

Specifications

Amplitude and phase images reconstruction in one single-shot at distinct wavelengths for illumination and detection.

Sample can be illuminated with Near-IR or Mid-IR light and the detection is carried on the visible spectral range.

Current wavelengths:

Pump = 405 nm

Signal = 910 nm

Idler = 730 nm

The optical system can resolve objects of features size larger than 70 μm .