

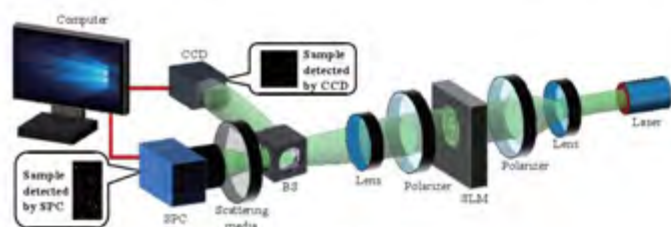


## Scatter Imaging

Our TSLM023-A amplitude type spatial light modulator can be used for deep learning based single photon detection scattering imaging studies.

### Experimental principle

The laser is amplified through the beam expander and irradiated to the transmissive liquid crystal amplitude type spatial light modulator, one beam is collected by the single photon counting camera through the hairy glass, and the other beam is received directly by the CCD without scattering, in the experiment, the scattered area of the target photon caused by the scattering medium is larger than the detection surface of the single photon counting camera, and the scattered spot obtained contains part of the information of the original image, the experiment uses MINIST a 28×28 8-bit grayscale image from the handwritten digital set is used as the target for the spatial light modulator.



Experimental setup

### Application direction

Under the low light conditions, only partial information of the object can be obtained because the scattergram is not fully formed. The quality of the reconstructed image can eventually be improved by expanding the data set by multiple detection of the training data set and using the randomness of detection under low light. It helps to solve the problem of very low light detection and the optical problem of exploring the limit conditions.