

## Measuring protein concentration with entangled photons

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### Reference:

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<http://arxiv.org/abs/1109.3128> [2]

Optical interferometry is amongst the most sensitive techniques for precision measurement. By increasing the light intensity a more precise measurement can usually be made. However, in some applications the sample is light sensitive. By using entangled states of light the same precision can be achieved with less exposure of the sample. This concept has been demonstrated in measurements of fixed, known optical components. Here we use two-photon entangled states to measure the concentration of the blood protein bovine serum albumin (BSA) in an aqueous buffer solution. We use an opto-fluidic device that couples a waveguide interferometer with a microfluidic channel. These results point the way to practical applications of quantum metrology to light sensitive samples.

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