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## Ultra-thin film yttria enhanced gold photocathodes

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The performance requirements for next generation electron accelerators put ever increasing demand on the photocathode performance, where it fundamentally limits the achievable beam quality. Metal photocathodes are limited by their high work function and relatively low quantum efficiency, necessitating the use of high powered deep UV lasers. Metal oxide thin film interfaces have been shown to reduce the work function of the underlying metal photocathode, whilst maintaining the ease of use, high durability and fast response time. This leads to an improvement in quantum efficiency and spectral response to desirable incident laser sources. We present the characterisation of a thin film yttria (Y<sub>2</sub>O<sub>3</sub>) enhanced Au photocathode at various film thicknesses. Quantum efficiencies were measured at 265 nm along with surface compositions via X-ray photoelectron spectroscopy.

### Funding Agency

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

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