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This is a poster tile: semiconductor photocathodes fabrication at ACERT

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Photocathodes play key roles in supplying electron beams for diverse research facilities. Among them, semiconductor photocathodes stand out for their high quantum efficiency (QE). Typically, a high QE, long operation time, low thermal emittance and fast response time are desired for the accelerator community. However, the performance of semiconductor photocathodes is extremely sensitive to growth conditions. In this presentation, I will delve into recent advancements in semiconductor photocathodes fabrication at Applied Cathode Enhancement and Robustness Technologies (ACERT) of Los Alamos National Laboratory (LANL). These updates allow us to fine tune growth parameters and fabricate photocathodes with high QE and low emittance at high gradient to meet the requirements of photocathodes for Cathodes and Radiofrequency Interactions in Extremes (CARIE) project at LANL. Specifically, I will highlight our progress in developing a control system that enables to accurately control growth parameters. Furthermore, I will show our preliminary results focusing on the fabrication of CsSb and CsTe photocathodes using both sequential and co-deposition methods.

Footnotes

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Paper preparation format

Region represented

North America

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