



Contribution ID: 45

Type: **Oral**

## **Towards robust polarized photoemission electron sources**

*Tuesday, 16 May 2023 10:30 (20 minutes)*

Superlattice-strained negative electron affinity GaAs photocathodes can produce electron beam polarization in excess of 90%, and if appropriately layered, quantum efficiencies of multiple percent. As such is the go-to source for polarized photoinjector applications and is the planned source for multiple future collider designs. However, it achieves negative electron affinity by virtue of a cesium and oxygen sub-monolayer, which makes it extremely vacuum sensitive, and limits its use in all but DC electron guns, which limits its ultimate brightness potential. In this talk I will describe work at Cornell to explore new means to generate polarized photoelectrons. This includes investigation of more robust activating coatings for GaAs, as well as studies of other more robust candidate polarized photocathode materials, such as single crystal alkali antimonides and GaN.

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**Session Classification:** Accelerator: Particle Sources

**Track Classification:** Accelerator: Particle Sources