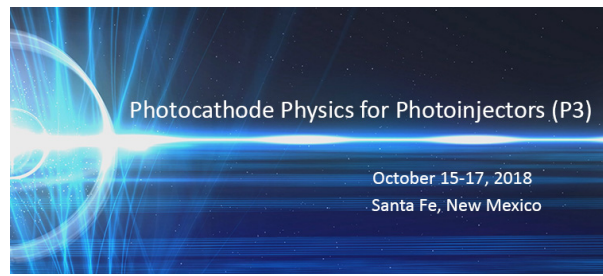


Photocathode Physics for Photoinjectors 2018



Contribution ID: 35

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Ultra thin-film coatings and Novel approaches toward Superconducting Photocathodes

Tuesday, 16 October 2018 10:55 (20 minutes)

We examine the potential of thin surface coatings to increase the QE of Nb while minimizing any additional RF losses. It is found that ultra-thin layers of Cs₂Te on Nb, as low as 1.5 nm, still exhibit QE ~6%. A phenomenological model of the Nb/Cs₂Te bilayer is in good agreement with the measured thickness dependence. We also explore metal overlayers to exploit the superconducting proximity effect. Uniform Mg layers of 10nm increase the QE of Nb by a factor of 10. The addition of 4.0 nm islands leads to a QE enhancement of up to 400 which we attribute to plasmonic effects. There will also be a short discussion on studies of the non-ideal nature of interfaces of MgO/Ag/MgO multilayer structures.

Presenter: Dr SPENTZOURIS, Linda (Illinois Institute of Technology)

Session Classification: Session 6

Track Classification: Session 6: Application Oriented Research: Cathode Design