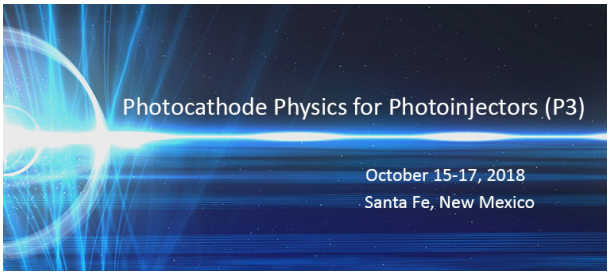

Contribution ID: **50** Type: **not specified**

Overcoming challenges related to the operation of photocathodes in SRF photoinjectors

Tuesday 16 October 2018 16:25 (20 minutes)

The HZB accelerator project bERLinPro (berlin Energy Recovery Linac Prototype) is continuously developing and is aiming for first operation in 2019. The goal of bERLinPro is to demonstrate a superconducting ERL with high current and low emittance. Within this highly complex R&D project a key component has been developed in-house: the photocathode, which is the electron source, and fundamentally defines the beam properties. Cesium-potassium-antimonide (Cs-K-Sb) has been chosen for the photocathode material, because of its high quantum efficiency (QE) in the visible wavelength regime. For the operation of bERLinPro, a dedicated UHV-infrastructure was built to grow and optimize Cs-K-Sb photocathodes, to transport them to the accelerator and finally to exchange the photocathode in the SRF photoinjector. In my talk I will present the method developed for high QE Cs-K-Sb photocathodes growth as well as studies relating to their operation in the SRF-photoinjector.

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Session Classification: Session 8

Track Classification: Session 8: Operations and Demonstrations - Superconducting & DC