

Erratum: Quantitative framework for photoemissive materials: From bialkali-antimonide synthesis to performance in superconducting RF electron injectors [Phys. Rev. Materials 10, 074601 (2026)]

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Following publication of our original article, a mistake was noticed by the authors regarding the QE measurement in the SRF photoinjector in Sec. V. The photocathode QE was measured using the 521 nm photocathode laser. During a repeat calibration of the laser power we identified an error caused by an ND 1.0 filter that had not been considered in the original power measurement used for the photocathode SEA03. The measured laser power was therefore underestimated by a factor of 9.8 causing an overestimation of the QE by the same factor. This only affects the QE values given for the photocathode SEA03 measured in the photoinjector in Sec. V. The QE values measured in the preparation and transfer system and the QE measurements of SEA02 in the photoinjector were not affected. The photocathode SEA03 had a remaining QE of 0.04% in the photoinjector (gun) after transfer. The last bar in Fig. 6 of the original article has been corrected and is shown in Fig. 1.

The change in QE of SEA03 affects Fig. 7 of the original article and the corrected plot is shown in Fig. 2. We measured a threshold energy of $E_T = 2.23$ eV for SEA02 and $E_T = 2.11$ eV for SEA03. Both threshold energies are significantly increased compared to that of the sample TP02 investigated at PhoTEx, which is in line with their degradation state. However, the resolution of the measurement is not sufficient to observe direct correlations between the QE and the threshold energy. In particular, the Schottky scan of SEA02 shows fluctuations, likely caused by RF instabilities.

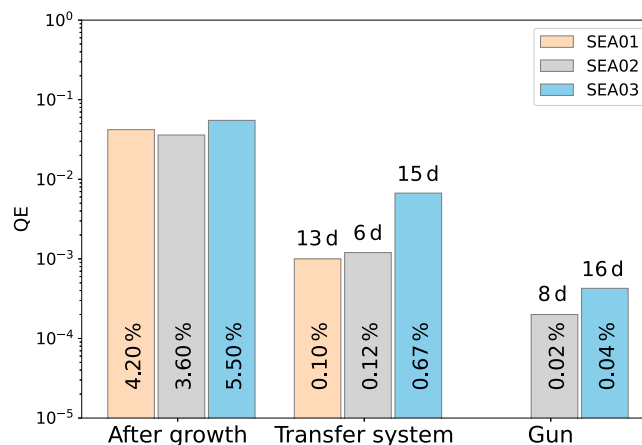


FIG. 1. Overview of all photocathodes prepared for the photoinjector of SEALab. Shown are the QE values after the growth, in the transfer system at the photoinjector, and after insertion into the gun. Above the bars, the elapsed days after the growth are also given.

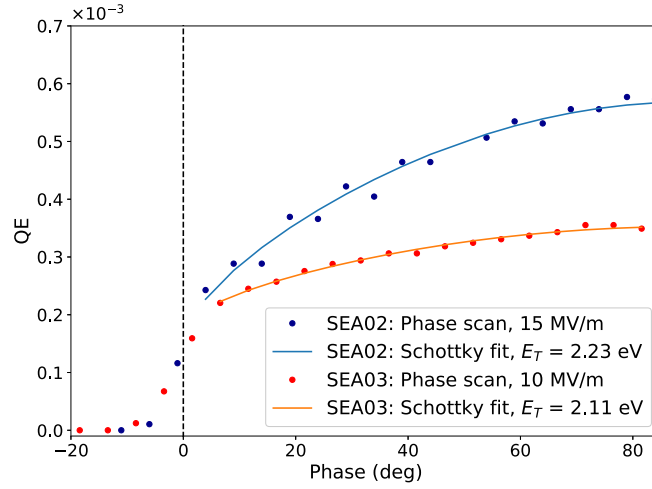


FIG. 2. Schottky scans of photocathodes SEA02 and SEA03 in the SRF photoinjector of SEALab. The threshold energy is determined by fitting the data with Eq. (2) of the original article.

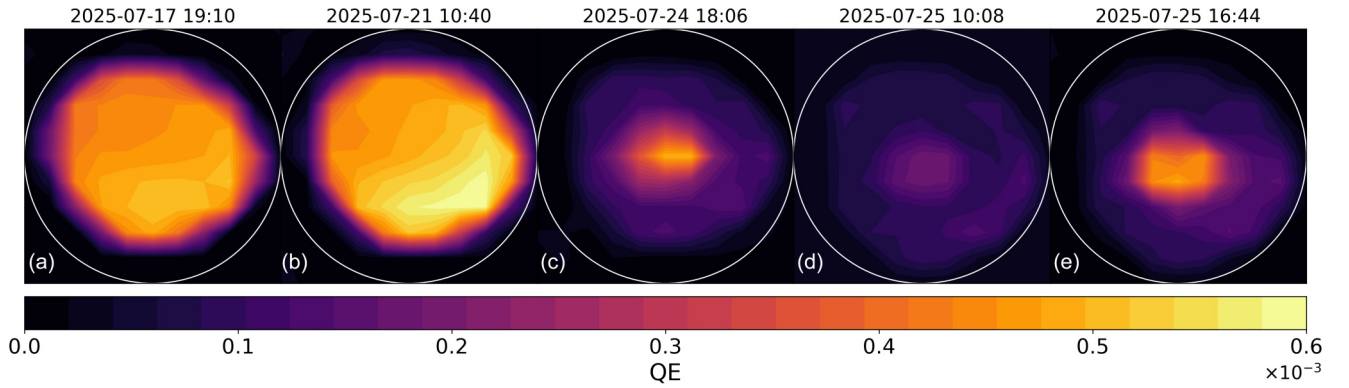


FIG. 3. QE maps of SEA03 showing significant changes in the QE distribution. The white circles mark the edges of the photocathode plugs with a 10 mm diameter.

The scale of Fig. 11 of the original article must also be corrected and the updated version is shown in Fig. 3. As the relative distributions and changes of the QE map do not change, this does not affect the discussion or interpretation of the plot.

In general, these corrections do not alter the results and conclusions of the original study. The authors apologize for the error and any inconvenience caused.