

## Erratum: Observation of the Anomalous Increase of the Longitudinal Energy Spread in a Space-Charge-Dominated Electron Beam [Phys. Rev. Lett. 94, 134801 (2005)]

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A reader of the original manuscript, Harry Kleinschmidt, California Institute of Technology, pointed out to us that Eqs. (1a) and (3a) do not exhibit the correct dimensionality of energy. A careful check revealed that this assertion is correct and that these equations must be changed as follows.

In Eq. (1a), the charge  $q$  in the first term inside the parentheses on the right-hand side should be changed to  $q^2$  so that the equation reads

$$\Delta \tilde{E}_{\parallel f} = \left( \frac{1}{\pi \epsilon_0} q^2 n^{1/3} q V_0 + 2q V_0 k_B T_{\parallel} \right)^{1/2}.$$

This omission of the extra factor  $q$  was an inadvertent typographical error, which had no effect on the calculations and comparison with the experimental results. The first term, like the second term in the parentheses, has the dimension of  $(\text{energy})^2 = (\text{eV})^2$ .

In Eq. (3a), the cathode-temperature term in the denominator should be changed from  $(k_B T_c)^{3/2}$  to  $(k_B T_c)^{1/2}$  so that the equation reads

$$\Delta \tilde{E}_{\parallel f} = \left( \frac{2 \ln \Lambda}{1.34} \frac{(mc^2)^{5/2} \pi^{1/2} r_0}{(k_B T_c)^{1/2} r_c} \frac{r_0 I L}{q c a} \right)^{1/2}.$$

The form of Eq. (3b) remains unchanged, but the energy normalization constant is changed to

$$\Delta E_{\parallel o} = \left( \frac{2 \ln \Lambda}{1.34} \frac{(mc^2)^{5/2} \pi^{1/2} r_0}{(k_B T_c)^{1/2} r_c} \right)^{1/2}$$

so that (3b) reads

$$\ln \frac{\Delta E_{\parallel f}}{\Delta E_{\parallel o}} = \frac{1}{2} \ln \left( \frac{I L}{I_0 a} \right).$$

This change has the effect that Fig. 5 must be revised as shown.

The net result of this change is that all points on the ordinate are shifted up by an amount of 1.15, but the slope remains still 0.46, close to the theoretical value of 0.5. The conclusions are the same as before.

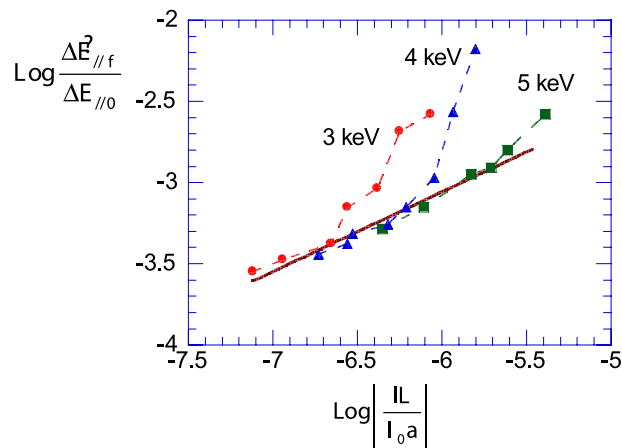


FIG. 5 (color online). Revised.