

# Localized and cascading secondary electron generation as causes of stochastic defects in extreme ultraviolet projection lithography (Erratum)

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This article [H. Fukuda, *J. Micro/Nanolith. MEMS MOEMS* 18(1), 013503 (2019) doi: <https://doi.org/10.1117/1.JMM.18.1.013503>] was originally published online on 8 February 2019 with incorrect parameter units.

The parameter units were reported as “meV” rather than “eV” in the caption of Fig. 3, Sec. 4, and the legends in Fig. 5(c) as follows.

Original sentence:

“Fig. 3 Probability functions for SE strings. (a)  $\text{pdf}_{\text{SEstring}}$  (length; endpoint) versus end point (solid lines) and start point (dashed lines), and (b) typical profiles of  $\text{p}_{\text{SEstring}}$  ( $x_i$  ledge =  $x_j$ ; photon =  $r$ ), both for SE energy = 10 meV, inter-SE distance = 2 nm.”

Corrected sentence:

“Fig. 3 Probability functions for SE strings. (a)  $\text{pdf}_{\text{SEstring}}$  (length; endpoint) versus end point (solid lines) and start point (dashed lines), and (b) typical profiles of  $\text{p}_{\text{SEstring}}$  ( $x_i$  ledge =  $x_j$ ; photon =  $r$ ), both for SE energy = 10 eV, inter-SE distance = 2 nm.”

Original sentence:

“SE energy per inelastic scattering (10 to 20 meV or PE energy<sup>0.5</sup>), elementary reaction site density (10/nm<sup>3</sup>), voxel size (1 nm), and the number of solubility flipped voxels through film thickness  $n_{\text{SFV}}$  required for generating main pattern (10) and film defect (3) are set constant during the optimization.”

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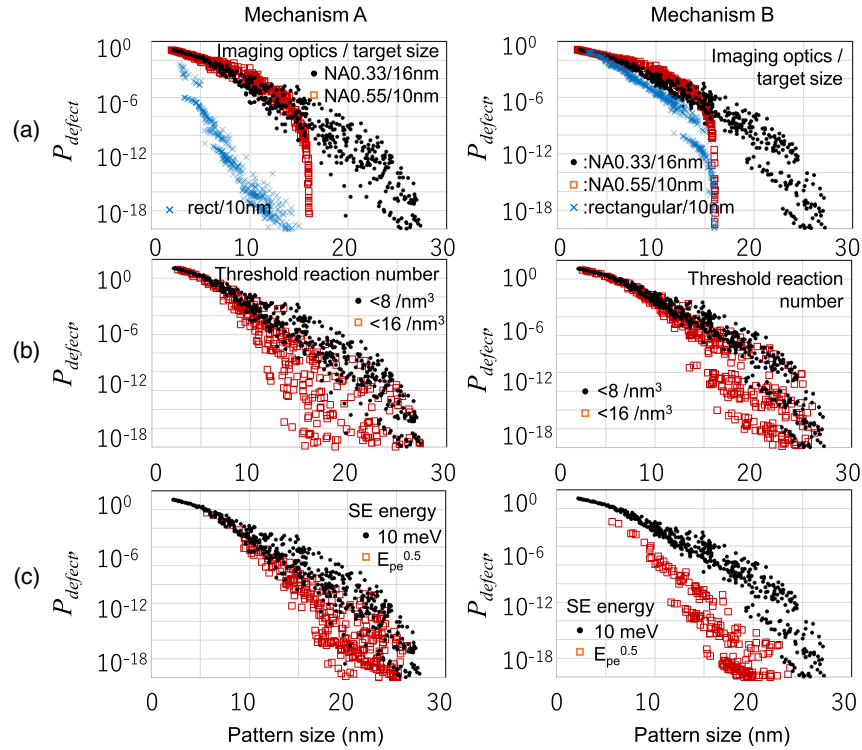
Original sentence:

“For mechanism B defect, optimization results with changing the assumption of  $E_{\text{se}}$  (from 10 meV to square root of photoelectron energy) show a reduction in the defect probabilities [Fig. 5(c), red squares].”

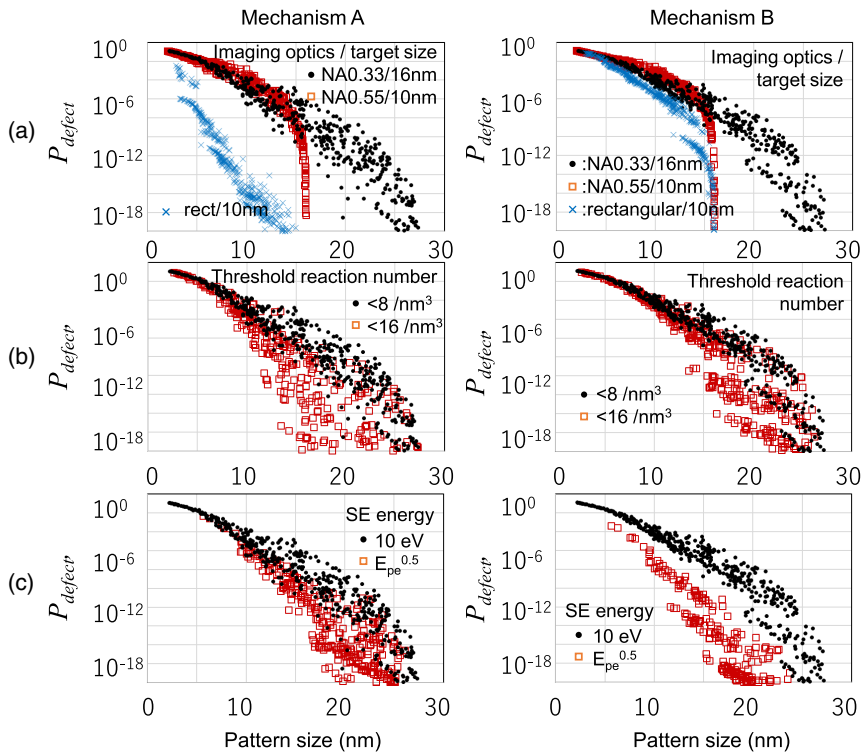
Corrected sentence:

“For mechanism B defect, optimization results with changing the assumption of  $E_{\text{se}}$  (from 10 eV to square root of photoelectron energy) show a reduction in the defect probabilities [Fig. 5(c), red squares].”

Original Fig. 5:



Corrected Fig. 5:



The results were obtained using the parameters in the correct units, and these errors did not impact the results reported in the article. The corrected paper was republished on 13 July 2022.