

Author Correction: A doping-less junction-formation mechanism between n-silicon and an atomically thin boron layer (Scientific Reports, (2017), 7, 1, (13247), 10.1038/s41598-017-13100-0)

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Author Correction: A doping-less junction-formation mechanism between n-silicon and an atomically thin boron layer

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Correction to: *Scientific Reports* <https://doi.org/10.1038/s41598-017-13100-0>, published online 16 October 2017

Whilst the original version of this Article cited Mohammadi's related thesis as reference 2, the relevant original literature covering the technological aspects were not. As a result, references 32 – 35 are omitted and are listed below.

32. Mok, K.R.C., Mohammadi, V., Nanver, L.K., de Boer, W.D., & Vlooswijk, A.H.G. Low-pressure chemical vapor deposition of PureB layers on silicon for p+n junction formation. In *12th International Workshop on Junction Technology, Shanghai, China*, 113-116 <https://doi.org/10.1109/TWJT.2012.6212822>, 113-116 (2012).
33. Nanver, L.K. *et al.* Pure dopant deposition of B and Ga for ultra-shallow junctions in Si-based devices. *ECS Trans.* **49**, 25 (2012).
34. Mohammadi, V. *et al.* VUV/low-energy-electron Si photodiodes with post-metal 400 °C PureB deposition. *IEEE Electron. Device Lett.* **34**, 1545 (2013) DOI:<https://doi.org/10.1109/LED.2013.2287221> (2013).
35. Nanver, L.K. *et al.* Robust UV/VUV/EUV PureB photodiode detector technology with high CMOS compatibility. *IEEE J. Sel. Top. Quantum Electron.* **20**, 306-316. DOI:<https://doi.org/10.1109/JSTQE.2014.2319582i> (2014).

In addition, reference 36, which discusses an alternative junction formation mechanism, was omitted and is listed below.

36. Qi, L. and Nanver, L.K. Conductance along the interface formed by 400 °C pure boron deposition on silicon. *IEEE Electron. Device Lett.* **36**, 15102. DOI:<https://doi.org/10.1109/LED.2014.2386296> (2015).

Consequently, the sentence in the Introduction,

“It has been shown that a nanometer-thin boron amorphous layer can be created on the surface of crystalline silicon through a chemical vapor deposition (CVD) process in the temperature range from 700 °C to 400 °C²”

should read:

“It has been shown that a nanometer-thin boron amorphous layer can be created on the surface of crystalline silicon through a chemical vapor deposition (CVD) process in the temperature range from 700 °C to 400 °C^{2,32-36}”

And the text,

“The as-formed rectifying junction exhibits excellent electrical and optical characteristics² without doping the silicon.”

should read:

“The as-formed rectifying junction exhibits excellent electrical and optical characteristics^{2,36} without doping the silicon.”

Finally, in the Methods section, under the subheading “Boron deposition on silicon”, the sentence

“For the formation of the B-Si junction, some *ex-situ* and *in-situ* processing steps are necessary. The *ex-situ* steps involve removing oxides and contaminants at the Si surface and effectively passivating the surface².”

should read:

“For the formation of the B-Si junction, some *ex-situ* and *in-situ* processing steps are necessary. The *ex-situ* steps involve removing oxides and contaminants at the Si surface and effectively passivating the surface^{2,32–35}.”

References

32. Mok, K. R. C., Mohammadi, V., Nanver, L. K., de Boer, W. D., & Vlooswijk, A. H. G. Low-pressure chemical vapor deposition of PureB layers on silicon for p+ n junction formation. In *12th International Workshop on Junction Technology, Shanghai, China*, 113–116 <https://doi.org/10.1109/IWJT.2012.6212822> (2012).
33. Nanver, L. K. *et al.* Pure dopant deposition of B and Ga for ultra-shallow junctions in Si-based devices. *ECS Trans.* **49**, 25 (2012).
34. Mohammadi, V. *et al.* VUV/low-energy-electron Si photodiodes with post-metal 400 °C PureB deposition. *IEEE Electron. Device Lett.* **34**, 1545. <https://doi.org/10.1109/LED.2013.2287221> (2013).
35. Nanver, L. K. *et al.* Robust UV/VUV/EUV PureB photodiode detector technology with high CMOS compatibility. *IEEE J. Sel. Top. Quantum Electron.* **20**, 306–316. <https://doi.org/10.1109/JSTQE.2014.2319582i> (2014).
36. Qi, L. & Nanver, L. K. Conductance along the interface formed by 400 °C pure boron deposition on silicon. *IEEE Electron. Device Lett.* **36**(15102) <https://doi.org/10.1109/LED.2014.2386296> (2015).



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