

Supplemental to X-ray characterisation of the basal stacking fault densities of (11 $\bar{2}$ 2) GaN

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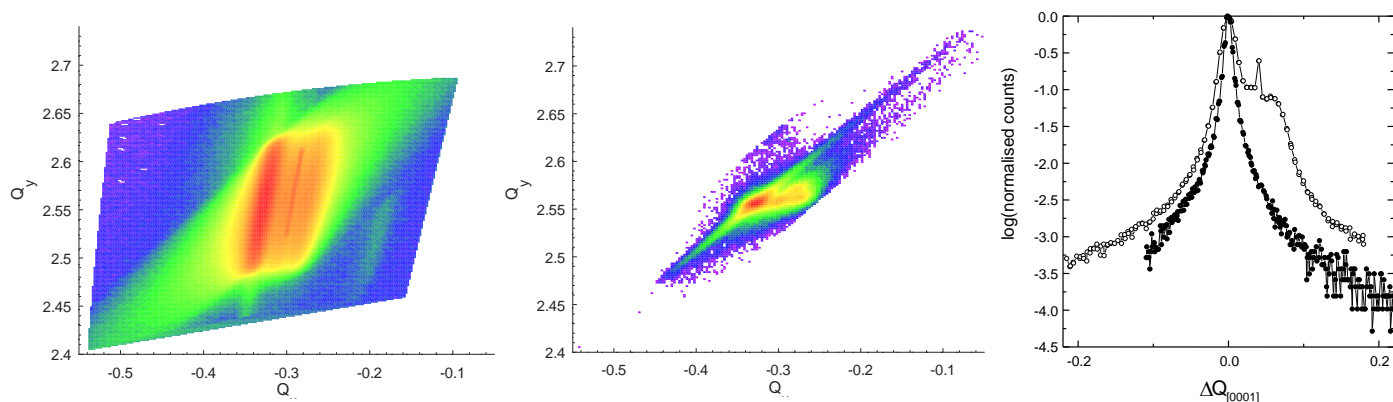


Figure 1 Reciprocal space maps around 10 $\bar{1}$ 1 GaN in the $[\bar{1}2\bar{1}0]$ zone taken with open detector (left) and analyser crystal (center) of the same sample. The broadening with open detector as well as the artefacts from lower layers (both due to the line focus of the diffractometer used) results in a different shape (right) of the extracted profiles along [0001].

- [1] S. Lazarev, S. Bauer, T. Meisch, M. Bauer, I. Tischer, M. Barchuk, K. Thonke, V. Holy, F. Scholz and T. Baumbach, *J. Appl. Crystallography*, 2013, **46**, 1425–1433.
- [2] S. Bauer, S. Lazarev, M. Bauer, T. Meisch, M. Caliebe, V. Holý, F. Scholz and T. Baumbach, *J. Appl. Crystallog.*, 2015, **48**, 1000–1010.

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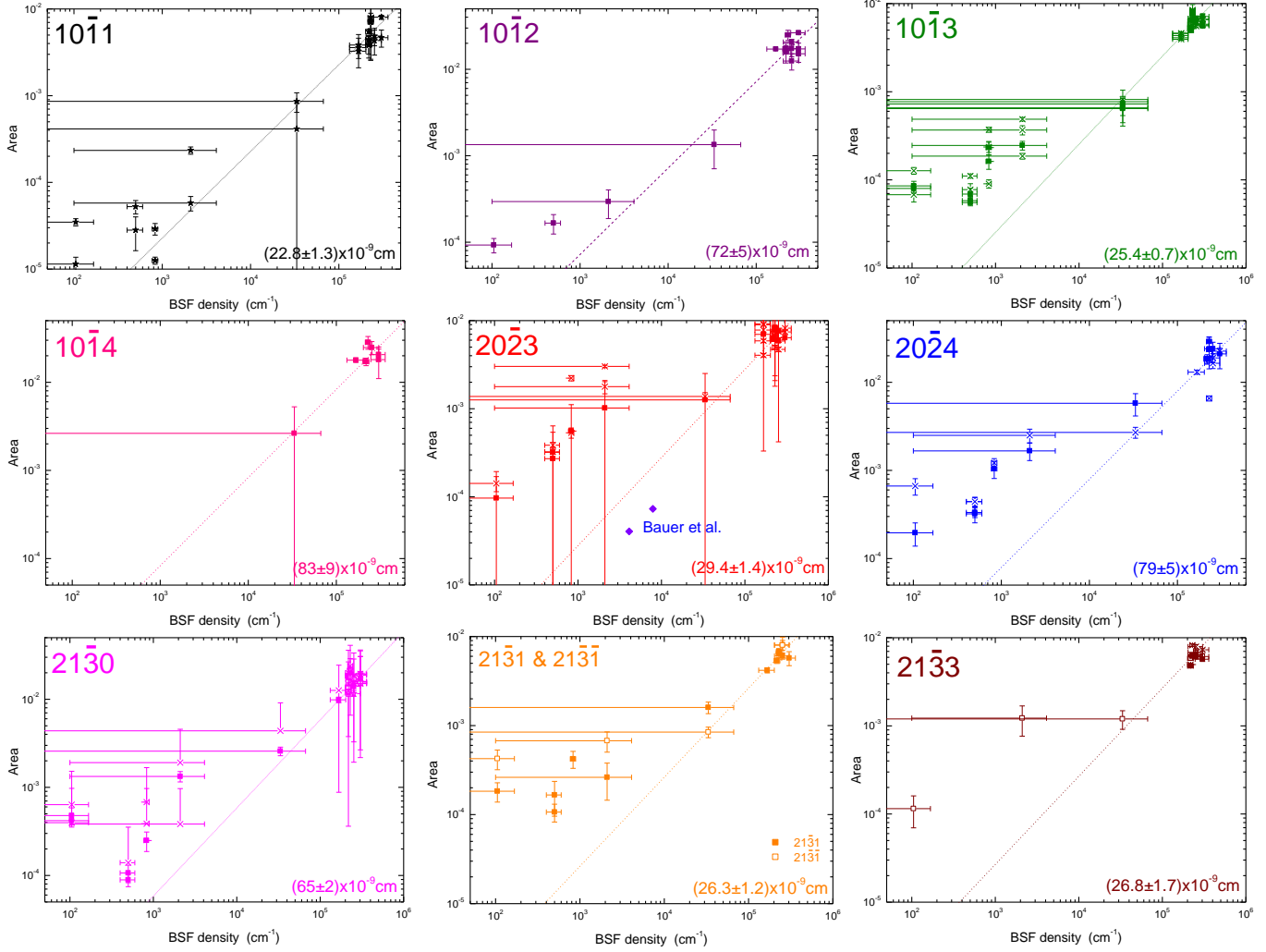


Figure 2 Lorentzian peak area from eq. (2) plotted as function of the BSF density determined by ECCI, CL, and TEM for all reflections that were measured also for low BSF densities in double logarithmic scale. Filled symbols are from RMSs with positive offset, empty boxes for negative offsets, and crosses are from single 2θ scans for $10\bar{1}3$ and 2023 , $\omega - 2\theta$ scans for $10\bar{1}5$ and $10\bar{1}6$, and ω scans for $21\bar{3}0$. For 2023 also data from literatur is added^{1,2}. The dotted lines are linear fits through the origin.

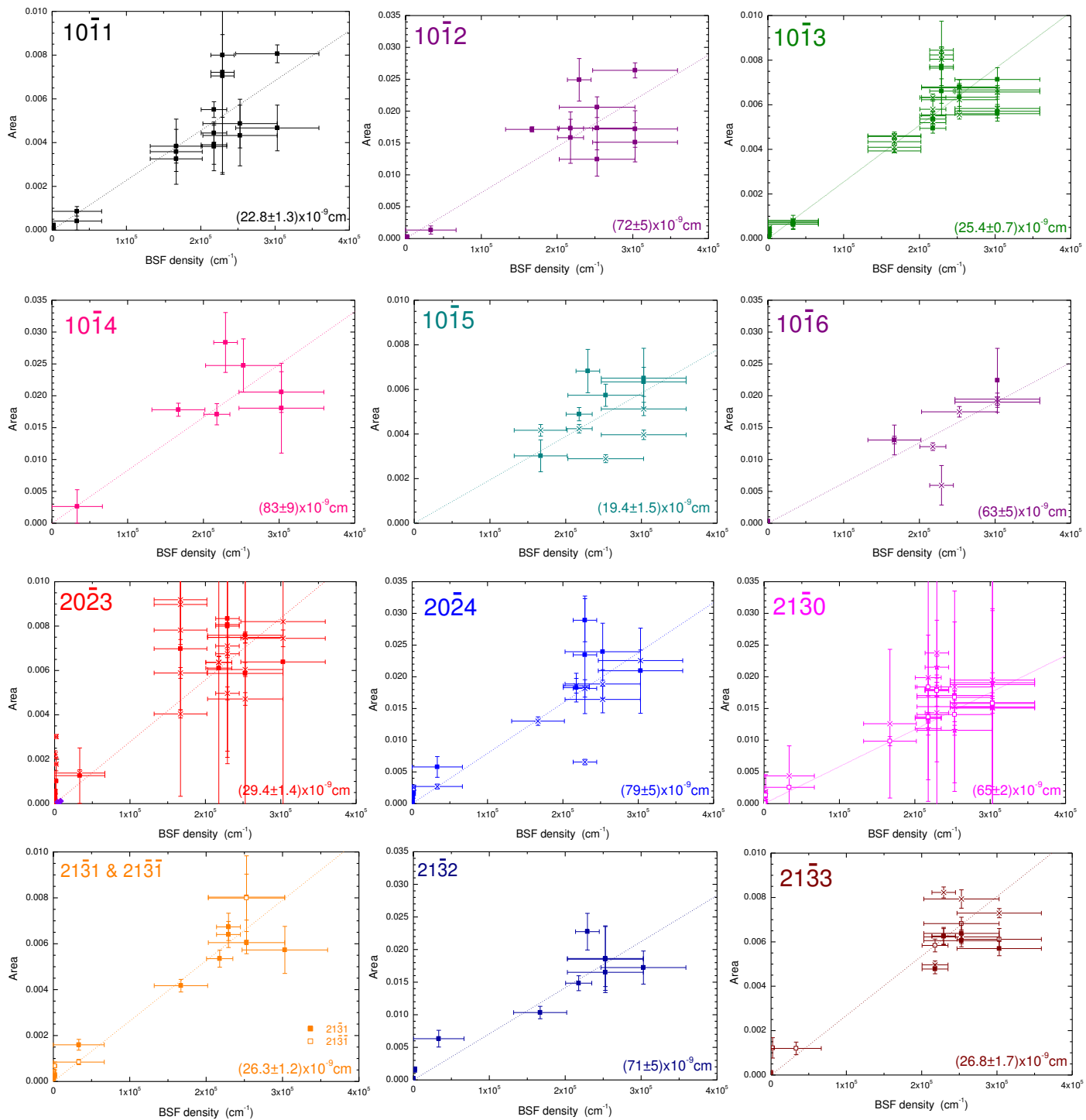


Figure 3 Lorentzian peak area from eq. (2) plotted as function of the BSF density determined by ECCI, CL, and TEM in linear scale to better estimate the accuracy of fitting. Filled symbols are from RMSs with positive offset, empty boxes for negative offsets, and crosses are from single 2θ scans for $10\bar{1}3$ and $20\bar{2}3$, $\omega - 2\theta$ scans for $10\bar{1}5$ and $10\bar{1}6$, and ω scans for $21\bar{3}0$. For $20\bar{2}3$ also data from literatur is added^{1,2}. The dotted lines are linear fits through the origin.