Electronic Supplementary Information (ESI) for Nanoscale.

**Rapid fabrication of solid-state nanopore with high reproducibility using helium ion microscope over a large area**

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Figure S1. HIM images to test the nanopore exposure time series: (A)-(B) dirty samples; (C)-(D) clean samples after oxygen plasma cleaning.
Figure S2. TEM images of overall view of 10×5 array: purple lines meaning x-direction and red arrows meaning nanopore locations.
Figure S3. TEM images of overall view of 6×5 array: purple lines meaning x-direction and red arrows meaning nanopore location.
Figure S4. TEM images of 22 individual nanopores in 6×5 arrays with exposure time 0.3s. The field of view of image is 90nm.
Table S1. Nanopore dimensions (long axis × short axis, nm) from TEM images for exposure time 0.3s

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Table S2. Nanopore dimensions (long axis × short axis, nm) from TEM images for exposure time 0.5s.

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Figure S5. Images for nanopore arrays with exposure time series (A) quick HIM images after 1st milling of the array; (B) TEM images for two arrays.
Figure S6. HIM images for 3×5 arrays with automated milling and imaging mode using exposure time 10s: (A) overall disc view; (B) positions of 3×5 arrays; (C) nanopore on position #1; (D) nanopore on position #3; (E) nanopore on position #8; (F) nanopore on position #14; (G) nanopore on position #13; (H) nanopore on position #15. The field of view for (C)-(H) is 2µm.