

CLAIMS

1. A charged particle assessment tool comprising:
an objective lens configured to project a plurality of charged particle beams onto a sample,
5 the objective lens defining a plurality of beam apertures through which respective ones of the charged particle beams can propagate toward the sample; and
a plurality of sensor units substantially surrounding respective ones of the beam apertures and configured to capture charged particles emitted from the sample.
- 10 2. A tool according to claim 1, wherein the sensor units have a circular outer perimeter.
3. A tool according to anyone of the preceding claims further comprising a substrate provided at a downbeam-facing surface of the objective lens and on which the sensor units are formed.
- 15 4. A tool according to claim 3 wherein the sensor units are configured to substantially fill the sample-facing surface.
5. A tool according to claim 3 or 4 wherein the sensor units are capture electrodes.
- 20 6. A tool according to anyone of the preceding claims further comprising a substrate provided at an upbeam-facing surface of the objective lens and on which the sensor units are formed, preferably the sensor units are configured to face downbeam.
7. A tool according to anyof the preceding claims, where the plurality of sensor units
25 integrated into the objective lens.
8. A tool according to any one of claims 3 to 7 further comprising control circuitry formed in the substrate.
- 30 9. A tool according to claim 8 wherein the control circuitry comprises one or more of:
 - an amplifier, e.g. a trans-impedance amplifier;
 - an analog-to-digital converter;
 - a data multiplexor;
 - read-out gates.
- 35 10. A tool according to any one of claims 3 to 9 further comprising vias passing though the substrate.

11. A tool according to any of the preceding claims wherein each sensor unit comprises a plurality of sensor elements.
- 5 12. A tool according to claim 11, wherein the plurality of sensor elements divide each sensor unit radially.
13. A tool according to claim 11 or 12, wherein the plurality of sensor elements divide each sensor unit angularly.
- 10 14. A tool according to any of the preceding claims wherein the beam apertures may be arranged in a hexagonal array
15. An inspection method comprising:
- 15 emitting a plurality of charged-particle beams through a plurality of beam apertures to a sample; and
- capturing charged particles emitted by the sample in response to the charged-particle beams using a plurality of sensor units provided surrounding respective ones of the beam apertures.