

What is claimed is:

1. A method comprising:
directing an electron beam for an image frame grab of a site on a semiconductor wafer at a first
electron dose/nm²/time value below a damage threshold, wherein the semiconductor wafer
5 includes a layer of an organic material; and
subsequently directing the electron beam for a second image frame grab of the site at a second
electron dose/nm²/time value greater than the first electron dose/nm²/time value.
2. The method of claim 1, wherein the damage threshold depends on beam current.
3. The method of claim 1, wherein the second electron dose/nm²/time value is above the damage
10 threshold.
4. The method of claim 1, further comprising imaging the site using the electron beam with the
second electron dose/nm²/time value.
5. The method of claim 1, wherein the layer is a photoresist layer.
6. The method of claim 1, wherein the layer is an antireflective coating.
- 15 7. The method of claim 1, further comprising determining, using the processor, the damage
threshold using data for the organic material.
8. A system comprising:
an electron beam source that generates an electron beam;
a chuck configured to hold a semiconductor wafer in a path of the electron beam, wherein the
20 semiconductor wafer includes a layer of an organic material;
a detector that receives the electron beam from the semiconductor wafer; and
a processor in electronic communication with the electron beam source and the detector, wherein
the processor is configured to:
adjust the electron beam to a first electron dose/nm²/time value below a damage threshold
25 for an image frame grab of a site on the semiconductor wafer; and

- adjust the electron beam to a second electron dose/nm²/time value greater than the first electron dose/nm²/time value for a second image frame grab of the site subsequent to the first image frame grab of the site.
9. The system of claim 8, wherein the damage threshold depends on beam current.
- 5 10. The system of claim 8, wherein the second electron dose/nm²/time value is above the damage threshold.
11. The system of claim 8, further comprising imaging the site using the electron beam with the second electron dose/nm²/time value.
12. The system of claim 8, wherein the layer is a photoresist layer.
- 10 13. The system of claim 8, wherein the layer is an antireflective coating.
14. The system of claim 8, wherein the processor is further configured to determine the damage threshold using data for the organic material.
- 15 15. The system of claim 14, wherein the processor retrieves the data for the organic material from an electronic data storage unit, and wherein the data includes results for the organic material based on a scan rate and a field of view.