Claims

1. A metrology system comprising an optical system with an illumination path and a collection path, with at least one detector at a pupil plane of the collection path, wherein the optical system comprises at least one optical element at least one field plane of the collection path thereof which is configured to split a detected image into at least two pupil plane images, wherein the illumination path and the collection path are polarized, the illumination path comprising two perpendicularly polarized illumination sources and the collection path comprising two perpendicularly polarized detectors, each detecting at least two pupil plane images generated from correspondingly polarized illumination.

2. The metrology system of claim 1, wherein the at least two pupil plane images are detected by at least two corresponding detectors of the system.

3. The metrology system of claim 1, wherein the at least two pupil plane images comprise at least four pupil plane images corresponding to at least four targets which are captured simultaneously by the system.

4. The metrology system of claim 1, wherein the at least two pupil plane images are detected by at least two corresponding detectors of the system.

5. The metrology system of claim 1, wherein each of the two perpendicularly polarized illumination sources comprises at least two illumination sources which are spatially separated in the field plane of the illumination path.

6. The metrology system of claim 5, wherein the at least two illumination sources are at different wavelength ranges.

7. The metrology system of claim 1, further comprising at least one scanner configured to scan at least one of the illumination sources within at least one target cell.

8. The metrology system of claim 1, further comprising apodizing apertures at the pupil plane of the illumination path.

9. The metrology system of claim 1, further comprising at least one zeroth order blocker at a pupil plane in the collection path.

10. A method comprising:

splitting a detected image at a field plane of a collection path of a metrology system's optical system into at least two pupil plane images; and

polarizing an illumination path and the collection path of the optical system by configuring the illumination path to comprise two perpendicularly polarized illumination sources and configuring the collection path to comprise two perpendicularly polarized detectors, and further configuring each of the detectors to detect at least two pupil plane images generated from correspondingly polarized illumination.

11. The method of claim **10**, further comprising capturing the at least two pupil plane images simultaneously by at least one detector of the metrology system.

12. The method of claim **10**, further comprising detecting the at least two pupil plane images by at least two corresponding detectors.

13. The method of claim **10**, wherein the at least two pupil plane images comprise at least four pupil plane images corresponding to at least four targets which are captured simultaneously by the metrology system.

14. The method of claim **10**, wherein the two perpendicularly polarized illumination sources are at different wavelength ranges.

15. The method of claim **10**, further comprising configuring each of the two perpendicularly polarized illumination sources to comprise at least two illumination sources which are spatially separated in the field plane of the illumination path.

16. The method of claim **10**, further comprising scanning at least one of the illumination sources within at least one target cell.

17. The method of claim **10**, further comprising blocking zeroth diffraction orders at a pupil plane in the collection path.