Claims

1. A system configured to determine one or more parameters of a process to be performed on a specimen, comprising: a measurement subsystem comprising at least an energy source and a detector, wherein the energy source is configured to generate energy that is directed to the specimen, and wherein the detector is configured to detect energy from the specimen and to generate output responsive to the detected energy; and one or more computer subsystems configured for: determining an area of a defect detected on the specimen; correlating the area of the defect with information for a design for the specimen; determining a spatial relationship between the area of the defect and the information for the design based on results of said correlating; and automatically generating a region of interest, in which one or more measurements are performed for the specimen, based on the spatial relationship, wherein the one or more measurements are performed in the region of interest by the measurement subsystem during a process performed on the specimen by the measurement subsystem.

2. The system of claim 1, wherein the area of the defect is defined by a bounding box drawn around the defect in an image of the defect.

3. The system of claim 1, wherein the area of the defect is defined by a free form area drawn around the defect in an electron beam-based image of the defect.

4. The system of claim 1, wherein the information for the design comprises information for more than one layer of the design.

5. The system of claim 1, wherein the information for the design does not include information for features of the design that will not be printed on the specimen.

6. The system of claim 1, wherein the information for the design comprises information for patterned features in the design, and wherein said correlating comprises overlaying the area of the defect with the patterned features in the design.

7. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined by the one or more computer subsystems based on only the design.

8. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined by the one or more computer subsystems by pattern matching performed based on only the design.

9. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined by the one or more computer subsystems by geometric matching performed based on only the design.

10. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined by the one or more computer subsystems based on cell information for only the design.

11. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined by the one or more computer subsystems based on image processing of a graphical representation of only the design.

12. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined based on hot spot information for only the design.

13. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined based on information for hot spots in only the design, and wherein more than one of the additional regions of interest are determined for only one of the hot spots.

14. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined based on only the design, wherein said determining the spatial relationship comprises determining which of the additional regions of interest overlap spatially with the area of the defect, and wherein said automatically generating comprises selecting one of the additional regions of interest that overlap spatially with the area of the defect to be the region of interest to be measured for the defect.

15. The system of claim 1, wherein said automatically generating comprises altering the area of the defect based on the spatial relationship between the area of the defect and the information for the design and designating the altered area of the defect to be the region of interest.

16. The system of claim 1, wherein the information for the design comprises information for patterned features in the design, and wherein said automatically generating comprises determining an area of the region of interest based on the area of the defect and the patterned features adjacent to the area of the defect.

17. The system of claim 1, wherein the information for the design comprises information for patterned features in the design, and wherein said automatically generating comprises determining an area of the region of interest, based on a minimum of the area of the defect or one or more of the patterned features in the vicinity of the defect.

18. The system of claim 1, wherein the area of the defect is defined by a free form area drawn around the defect in an electron beam-based image of the defect, wherein the information for the design comprises information for additional regions of interest in the design determined based on only the design, wherein said determining the spatial relationship comprises determining which of the additional regions of interest overlaps spatially with or is closest to the area of the defect, and wherein said automatically generating comprises selecting or prioritizing one of the additional regions of interest that overlaps spatially with or is closest to the area of the defect to be the region of interest to be measured for the defect.

19. The system of claim 1, wherein the information for the design comprises information for additional regions of interest in the design determined by the one or more computer subsystems

based on only the design, and wherein one or more of the additional regions are measured during the process.

20. The system of claim 1, wherein the one or more computer subsystems are further configured for automatically determining one or more parameters of the one or more measurements performed in the region of interest during the process by the measurement subsystem.

21. The system of claim 1, wherein the output generated by the detector comprises images of the specimen, wherein different images are generated by the detector for different areas on the specimen, wherein multiple patterned features on the specimen are imaged in the different images, and wherein the one or more computer subsystems are further configured for automatically locating the multiple patterned features in the different images, determining one or more characteristics of the located multiple patterned features in the different images, and determining one or more statistics of the one or more characteristics determined for the located multiple patterned features in the different images.

22. The system of claim 21, wherein the different areas comprise areas on the specimen in which defects detected on the specimen and selected for defect review are located, and wherein the different images are generated by the measurement subsystem during a defect review process performed for the defects.

23. The system of claim 21, wherein the multiple patterned features comprise contacts.

24. The system of claim 23, wherein the measurement subsystem is further configured to be an electron beam microscope.

25. The system of claim 23, wherein the one or more characteristics comprise a critical dimension of the contacts.

26. The system of claim 21, wherein the multiple patterned features comprise line and space pairs.

27. The system of claim 21, wherein the one or more computer subsystems are further configured for automatically classifying the multiple patterned features based on the determined one or more statistics.

28. The system of claim 1, wherein the process is performed on the specimen during inline monitoring of a fabrication process performed on the specimen.

29. The system of claim 1, wherein the process comprises a metrology process, and wherein the system is further configured as to be a metrology tool.

30. The system of claim 1, wherein the process comprises an inspection process, and wherein the system is further configured to be an inspection tool.

31. The system of claim 1, wherein the process comprises a defect review process, and wherein

the system is further configured to be a defect review tool.

32. The system of claim 1, wherein the specimen comprises a wafer.

33. The of claim 1, wherein the specimen comprises a reticle.

34. The system of claim 1, wherein the energy directed to the specimen comprises light, and wherein the energy detected from the specimen comprises light.

35. The system of claim 1, wherein the energy directed to the specimen comprises electrons, and wherein the energy detected from the specimen comprises electrons.

36. A non-transitory computer-readable medium, storing program instructions executable on a computer system for performing a computer-implemented method for determining one or more parameters of a process to be performed on a specimen, wherein the computer-implemented method comprises: determining an area of a defect detected on the specimen; correlating the area of the defect with information for a design for the specimen; determining a spatial relationship between the area of the defect and the information for the design based on results of said correlating; and automatically generating a region of interest, in which one or more measurements are performed for the specimen, based on the spatial relationship, wherein the one or more measurements are performed in the region of interest by a measurement subsystem during a process performed on the specimen by the measurement subsystem, wherein the measurement subsystem comprises at least an energy source and a detector, wherein the energy source is configured to generate energy that is directed to the specimen, and wherein the detector is configured to detect energy from the specimen and to generate output responsive to the detected energy.

37. A computer-implemented method for determining one or more parameters of a process to be performed on a specimen, comprising: determining an area of a defect detected on the specimen; correlating the area of the defect with information for a design for the specimen; determining a spatial relationship between the area of the defect and the information for the design based on results of said correlating; and automatically generating a region of interest, in which one or more measurements are performed for the specimen, based on the spatial relationship, wherein the one or more measurements are performed in the region of interest by a measurement subsystem during a process performed on the specimen by the measurement subsystem, wherein the measurement subsystem comprises at least an energy source and a detector, wherein the energy source is configured to generate energy that is directed to the specimen, wherein the detector is configured to detect energy from the specimen and to generate output responsive to the detected energy, and wherein said determining the area, said correlating, said determining the spatial relationship, and said automatically generating are performed by one or more computer systems.