What is claimed is:

1. A system configured to determine one or more characteristics for defects detected on a specimen, comprising:

a storage medium configured for storing images for a specimen generated by an inspection system, wherein the inspection system is configured for scanning energy over a physical version of the specimen while detecting energy from the specimen to thereby generate the images for the specimen and detect defects on the specimen based on the images, wherein the inspection system is further configured to perform the scanning and the detecting with multiple modes, and wherein the images stored by the storage medium comprise the images generated for locations on the specimen at which the defects were and were not detected by the inspection system; and

one or more computer subsystems configured for:

identifying a first of the defects that was detected with a first of the multiple modes but was not detected with one or more other of the multiple modes;

acquiring, from the storage medium, one or more of the images generated with the one or more other of the multiple modes at a location on the specimen corresponding to the first of the defects;

determining one or more characteristics of the acquired one or more images; and

determining one or more characteristics of the first of the defects based on the one or more characteristics of the acquired one or more images.

2. The system of claim **1**, wherein the storage medium and the one or more computer subsystems are not part of the inspection system and do not have any capability for handling the physical version of the specimen.

3. The system of claim **1**, wherein the storage medium and the one or more computer subsystems are further con figured as a virtual inspection system.

4. The system of claim **1**, wherein the energy scanned over the specimen comprises light, wherein the energy detected from the specimen comprises light, and wherein at least one of the multiple modes uses at least one wavelength of the light scanned over the specimen that is different from at least one wavelength of the light scanned over the specimen used for at least one other of the multiple modes.

5. The system of claim **1**, wherein at least one of the multiple modes uses an illumination channel of the inspection system that is different from an illumination channel of the inspection system used for at least one other of the multiple modes.

6. The system of claim **1**, wherein at least one of the multiple modes uses a configuration of an aperture of the inspection system that is different from a configuration of an aperture of the inspection system used for at least one other of the multiple modes.

7. The system of claim **1**, wherein at least one of the multiple modes uses a detection channel of the inspection system that is different from a detection channel of the inspection system used for at least one other of the multiple modes.

8. The system of claim **1**, wherein the images generated for the locations on the specimen, at which the defects were and were not detected by the inspection system, and stored by the storage medium are generated by the inspection system in the same inspection performed by the inspection system on the specimen.

9. The system of claim **1**, wherein the inspection system is further configured to perform the scanning and the detecting with the multiple modes serially in different scans of the specimen performed during a single inspection process for the specimen.

10. The system of claim **1**, wherein the inspection system is further configured to perform the scanning and the detecting with at least two of the multiple modes simultaneously in a single scan of the specimen performed during a single inspection process for the specimen.

11. The system of claim **1**, wherein the images stored by the storage medium further comprise all of the images generated for the specimen by the inspection system during the scanning and detecting.

12. The system of claim **1**, wherein at least one of the acquired one or more images comprises a test image, and wherein determining the one or more characteristics of the at least one of the acquired one or more images comprises generating a difference image by subtracting a reference image for the at least one of the acquired one or more images from the test image and determining one or more characteristics of the difference image.

13. The system of claim **1**, wherein the first of the defects was detected in two different difference images generated for the location on the specimen corresponding to the first of the defects.

14. The system of claim **1**, wherein the first of the defects was detected in only one of multiple difference images generated for the location on the specimen corresponding to the first of the defects.

15. The system of claim **1**, wherein the one or more computer subsystems are further configured for acquiring, from the storage medium, two or more images generated with two or more of the multiple modes at an additional location on the specimen and determining if a defect is present at the additional location based on the acquired two or more images.

16. The system of claim **15**, wherein determining if the defect is present comprises determining two or more difference images for the acquired two or more images, respectively, determining two or more difference image attributes for the two or more difference images, respectively, and determining if a defect is present based on a combination of the two or more difference image attributes.

17. The system of claim **15**, wherein determining if the defect is present comprises determining two or more image attributes for the acquired two or more images, respectively, and determining if a defect is present based on a combination of the two or more image attributes.

18. The system of claim **15**, wherein determining if the defect is present comprises determining two or more image attributes for the acquired two or more images, respectively, and applying a multi-dimensional threshold to a combination of the two or more image attributes.

19. The system of claim **15**, wherein the one or more computer subsystems are further configured for determining one or more parameters used for determining if the defect is present based on a portion of a design for the specimen corresponding to the additional location.

20. The system of claim **15**, wherein the one or more computer subsystems are further configured for determining one or more parameters used for determining if the defect is present based on a segment of the acquired two or more images in which the additional location is located.

21. The system of claim **1**, wherein the one or more computer subsystems are further configured for binning the first of the defects based on the determined one or more characteristics of the first of the defects.

22. The system of claim **1**, wherein the one or more computer subsystems are further configured for classifying the first of the defects based on the determined one or more characteristics of the first of the defects.

23. The system of claim **1**, wherein the one or more computer subsystems are further configured for sampling the first of the defects based on the determined one or more characteristics of the first of the defects.

24. The system of claim **1**, wherein the one or more computer subsystems are further configured for combining the one or more characteristics of the first of the defects with inspection results generated for the specimen by the inspection system thereby generating modified inspection results and sending the modified inspection results to another system configured to perform a process on the physical version of the specimen.

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

26. The system of claim **1**, wherein the specimen comprises a reticle.

27. The system of claim **1**, wherein the energy scanned over the specimen comprises light, and wherein the energy detected from the specimen comprises light.

28. The system of claim **1**, wherein the energy scanned over the specimen comprises electrons, wherein the energy detected from the specimen comprises electrons.

29. 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 characteristics for defects detected on a specimen, wherein the computer-implemented method comprises:

storing images for a specimen generated by an inspection system, wherein the inspection system is configured for scanning energy over a physical version of the specimen while detecting energy from the specimen to thereby generate the images for the specimen and detect defects on the specimen based on the images, wherein the inspection system is further configured to perform the scanning and the detecting with multiple modes, and wherein the stored images comprise the images generated for locations on the specimen at which the defects were and were not detected by the inspection system;

identifying a first of the defects that was detected with a first of the multiple modes but was not detected with one or more other of the multiple modes;

acquiring, from the stored images, one or more of the images generated with the one or more other of the multiple modes at a location on the specimen corresponding to the first of the defects;

determining one or more characteristics of the acquired one or more images; and

determining one or more characteristics of the first of the defects based on the one or more characteristics of the acquired one or more images.

30. A method for determining one or more characteristics for defects detected on a specimen, comprising:

storing images for a specimen generated by an inspection system, wherein the inspection system is configured for scanning energy over a physical version of the specimen while detecting energy from the specimen to thereby generate the images for the specimen and detect defects on the specimen based on the images, wherein the inspection system is further configured to perform the scanning and the detecting with multiple modes, and wherein the stored images comprise the images generated for locations on the specimen at which the defects were and were not detected by the inspection system;

identifying a first of the defects that was detected with a first of the multiple modes but was not detected with one or more other of the multiple modes;

acquiring, from the stored images, one or more of the images generated with the one or more other of the multiple modes at a location on the specimen corresponding to the first of the defects;

determining one or more characteristics of the acquired one or more images; and

determining one or more characteristics of the first of the defects based on the one or more characteristics of the acquired one or more images, wherein said storing, said identifying, said acquiring, said determining the one or more characteristics of the acquired one or more images, and said determining the one or more characteristics of the first of the defects are performed by one or more computer subsystems.