

What is claimed is:

1. A system for measuring one or more properties of a photoresist material, comprising:

a photolithography processing system adapted to perform a defined photolithography process on the photoresist material; and

a coherent anti-Stokes Raman scattering (CARS) microscopy system adapted to perform ~~a~~ an in-situ measurement of the one or more properties of the photoresist material while the photoresist material is undergoing the photolithography process.

2. The system of claim 1, wherein the CARS microscopy system is adapted to perform the measurement of the one or more properties of the photoresist material simultaneous with the photolithography processing system performing the defined photolithography process on the photoresist material.

3. The system of claim 1, wherein the photolithography processing system is adapted to pause the defined photolithography process being performed on the photoresist material, and wherein the CARS microscopy system is adapted to perform the measurement of the one or more properties of the photoresist material while the photolithography processing system has paused the defined photolithography process performed on the photoresist material.

4. The system of claim 1, further comprising a scanning mechanism adapted to subject distinct portions of the photoresist material to the measurement performed by the CARS microscopy system.

16. The system of claim 1, wherein the photoresist material comprises a negative photoresist.

17. A method of measuring one or more properties of a photoresist material while undergoing a defined photolithography process, comprising:

performing the defined photolithography process on the photoresist material; and

performing a coherent anti-Stokes scattering (CARS) microscopy in-situ measurement of measuring the one or more properties of the photoresist material while the photoresist material is undergoing the photolithography process using coherent anti-Stokes Raman scattering (CARS) microscopy.

18. The method of claim 17, wherein performing the CARS in-situ measurement of measuring the one or more properties of the photoresist material comprises measuring the one or more properties of the photoresist material simultaneously with the defined photolithography process being performed on the photoresist material.

19. The method of claim 17, further comprising pausing the defined photolithography process performed on the photoresist material, wherein the in-situ CARS measurement of measuring the one or more properties of the photoresist material is performed while the defined photolithography process on the photoresist material is paused.

20. A system for measuring one or more properties of a photoresist material while the photoresist material is being manufactured, comprising:

a photoresist material manufacturing system adapted to manufacture the photoresist material; and