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(54) **Title:** SYSTEM AND METHOD FOR CHARACTERIZING MATERIAL SHRINKAGE USING COHERENT ANTI-STOKES RAMAN SCATTERING (CARS) MICROSCOPY

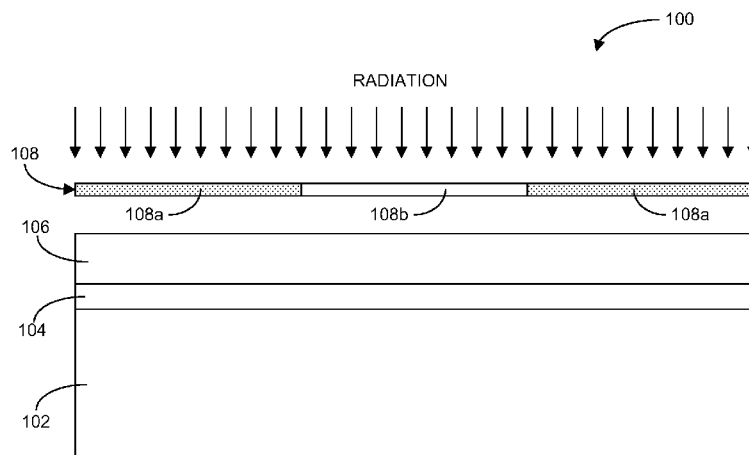


FIG. 1A

(57) **Abstract:** System and method are disclosed for measuring properties (e.g., shrinkage) of a photosensitive material (e.g., photoresist) while undergoing a defined photolithography process. The system includes a photolithography processing system adapted to perform a defined photolithography process of the photosensitive material, and a coherent anti-Stokes Raman scattering (CARS) microscopy system adapted to perform measurement of the properties of the photosensitive material. In another aspect, the CARS microscopy system is adapted to measure properties of the photosensitive material simultaneous with the defined photolithography process being performed on the photosensitive material by the photolithography processing system. In still another aspect, the CARS microscopy system is adapted to measure properties of the photosensitive material while the defined photolithography process on the photosensitive material is paused. Another system is adapted to perform similar measurements during the manufacturing of the photosensitive material.