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(54) Title: ON-THE-FLY OPTO-ACOUSTIC MICROSCOPY

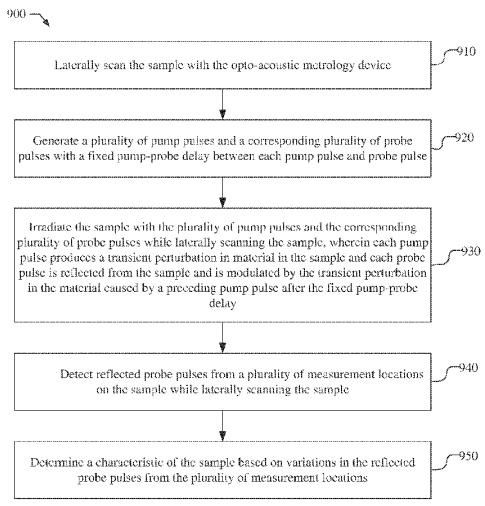


FIG. 9

(57) Abstract: An opto-acoustic measurement device detects and images buried structures in a sample, such as voids or other underlying structures, using a fixed delay time between pulses in the pump beam and pulses in the probe beam, while continuously scanning the sample over multiple measurements locations. The signals acquired at a fixed pump-probe time delay from a plurality of measurements locations has sufficient information and sensitivity to discriminate the presence or absence of a buried structure, such as a void, inclusion or solid structure, in a sample. The pump and probe beams may be focused in a line shaped illumination spot that is oriented orthogonally to that direction of travel during the scan, and a multi-channel linear detector array may detect signals at a plurality of locations along the line shaped illumination spot. Non-acoustic transient perturbations may be detected using two fixed pump-probe delay times.

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