

- [54] ACOUSTIC IMAGING SYSTEM AND METHOD
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[57] ABSTRACT

An acoustic microscope or like acoustic imaging system includes an insonifier for insonifying an object with high frequency (over ten megahertz) acoustic waves, a scanner for scanning a high-energy light beam across a reflective interface surface coupled to the object, a photodetector to detect the reflected beam, and a signal processor to convert the photodetector output to an image signal used to produce a visual image representative of acoustic properties of the object; the level of the image signal is detected and is used to adjust the gain of the insonifier to a reference level, the insonification gain adjustment affording a quantitative measure of acoustic properties of the object, usable for comparison purposes, that minimizes or eliminates the effects of system non-linearities and compensates for inadequate dynamic range of system components. The quantitative measurement can be limited to a portion of the object, for comparison with another part of the same object or with a part of another object, and the portions of the image corresponding to the quantitative measurements can be visually identified. An optical AGC circuit is provided to compensate for non-uniformity in operation of the optical scanner and photodetector.

51 Claims, 5 Drawing Figures

