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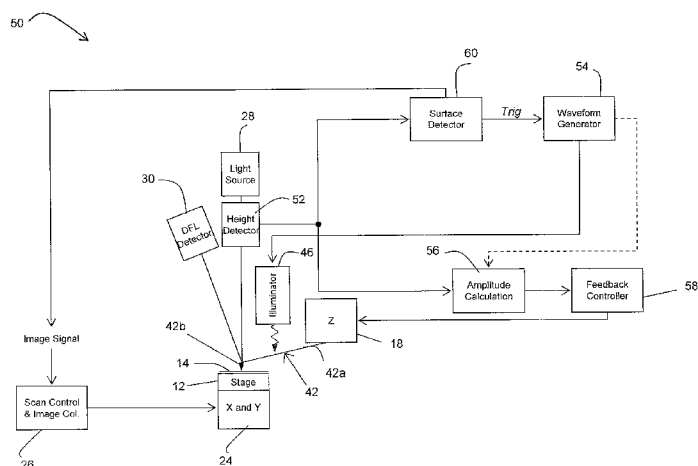
(54) **Title:** ADAPTIVE MODE SCANNING PROBE MICROSCOPE

Figure 1

(57) **Abstract:** A scanning probe microscope comprising a probe that is mechanically responsive to a driving force. A signal generator provides a drive signal to an actuator that generates the driving force, the drive signal being such as to cause the actuator to move the probe repeatedly towards and away from a sample. A detection system is arranged to output a height signal indicative of a path difference between light reflected from the probe and a height reference beam. Image processing apparatus is arranged to use the height signal to form an image of the sample. Signal processing apparatus is arranged to monitor the probe as the probe approaches a sample and to detect a surface position at which the probe interacts with the sample. In response to detection of the surface position, the signal processing apparatus prompts the signal generator to modify the drive signal.