

LICENSING OPPORTUNITY: PHOTOTHERMAL ACTUATION OF VIBRATIONS FOR MEASUREMENTS USING LASER DOPPLER VIBROMETERS

DESCRIPTION

Problem

Traditional vibration measurement tools often need direct contact, which can alter or damage sensitive samples - especially tiny or fragile ones like MEMS devices. These contact-based tools can also slow down measurement or limit precision.

Invention

The invention is an apparatus and process for measuring a vibration spectra of a sample using pulses of light to make a sample vibrate without touching it. A Laser Doppler Vibrometer (LDV) then measures these vibrations by detecting reflected light. The setup includes a special mirror and filters that separate the measurement laser from the vibration-driving light.

BENEFITS

Potential Commercial Applications

- Allows for studying the vibration characteristics of materials without damage.
- Allows for non-contact checks during high-precision production.
- Allows for evaluating small or delicate biological structures safely.
- Conduct testing and checking of tiny devices without affecting them.

Competitive Advantage

- Non-contact testing
- Higher accuracy & sensitivity
- Versatility across materials and scales
- Faster and more efficient measurements

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