

## 研究論文

## 光偏向法を用いた固体試料の内部き裂の2次高調波超音波検出の一方法

今野和彦\*

A Detecting System for the Crack in the Solid Material Using Light Deflection Method

Kazuhiko IMANO<sup>†</sup>

Light deflection method is introduced in the ultrasonic measurement system to detect and identify the position of the crack. Glass sample having opening and closed crack is used to demonstrate the usefulness of the method. Fundamental and second harmonic component including in the ultrasonic wave were analyzed by the deflected laser light via the APD sensor and signal analyzer. Second harmonic component increases at the tip of the crack and propagates around the tip of the crack is revealed. Possibility of quantitative evaluation of the sound pressure by the light deflection method is also demonstrated.

---

**Key Words** : light deflection method, crack, ultrasonic wave, higher harmonic wave, non-linear vibration