研 究 論 文

鋭敏色法によるA2モードLamb波の可視化

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Sensitive Tint Visualization of A2 Mode Lamb Waves

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Propagation of higher order mode Lamb waves of 2 MHz in a glass plate is visualized using a strobe photoelastic system introducing sensitive tint visualization method. The birefringence from stresses causes the interference of color while the Lamb waves propagation. Time transition of ultrasonic waves propagation can be observed by varying the timing of strobe pulse light. A2 mode Lamb waves are selectively excited using oblique incidence by the wedge. Incidence angle was adjusted by the phase velocity calculated by the Rayleigh-Lamb frequency equation. Obtained bitmap image from the visualization system and CMOS camera are processed to enhance the contrast. Directions of applied forces were determined using image of static stresses. Lamb waves in the glass are clearly visualized with the polarity of sound pressure.

Keywords : Strobe photoelastic method, Sensitive tint method, Visualization, Ultrasonic waves, Lamb waves, Subtraction image