

研究論文

有限要素法および鋭敏色法を用いた厚さが緩やかに変化する
ガラス板中のLamb波の伝搬解析

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Propagation Analysis of Lamb Waves in the Tapered Glass using
Sensitive Tint Method and Finite Element MethodKairi SUZUKI[†], Morimasa NISHIHIRA[†] and Kazuhiko IMANO[†]

Propagation of ultrasonic Lamb waves in a glass having tapered part was visualized by the strobe photoelastic system introducing sensitive tint method. The time transition of ultrasonic pressure of 1.447 MHz burst sine wave propagation were observed. To enhance the contrast of ultrasonic Lamb wave, subtracted image with C-MOS camera was adopted. As the results, polarities of ultrasound pressure were clearly visualized. As the Lamb wave propagate, higher mode of S2 Lamb waves in the thick part are appeared and they are gradually varied to S0 mode in the thin part via the tapered part of S1 mode. Moreover, FEM analysis and performed to verify the experimented results that these results are correct.

Keywords : Sensitive tint method, Tapered glass sample, Lamb wave, Ultrasound visualization