

# Cavity size and position identification using the observed sound pressure in hammering test based on the adjoint variable and the finite element methods

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In this study, we present the identification of the cavity position and the cavity size in structures based on the adjoint variable and the three dimensional finite element methods. The performance function is defined by square sum of residual between the observed and the computed sound pressure, and the unknown cavity position and cavity size is obtained by the iterative calculation of the minimization of the performance function. The observed sound pressure is measured by using the microphone in hammering test[1]. The formulation is carried out by the adjoint variable and the finite element methods[2]. The wave equation is adopted as the governing equation. Some case studies for the identification of the cavity position and the cavity size for a partial problem is shown in this study.

## REFERENCES

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