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STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(4620K\)\]](#) [\[References\]](#)**THREE-DIMENSIONAL FLAW RECONSTRUCTION FROM WAVEFORMS MEASURED ON THE SIDE OF A CYLINDER**Masaki YAMADA¹⁾, Kenji MURAKAMI²⁾, Kazuyuki NAKAHATA³⁾ and Michihiro KITAHARA¹⁾

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A modified three-dimensional inverse scattering method is applied to reconstruct the shape of a three-dimensional flaw in a cylindrical specimen. In this modified method, a measurement plane is restricted to the plane perpendicular to the axis of the cylindrical specimen. Thus the crosssectional image of the flaw can be obtained. By moving the measurement plane along the axis of the cylindrical specimen, the cross-sectional image is obtained for each measurement plane. The three-dimensional flaw image is reconstructed by piling up the obtained cross-sectional images. Cylindrical specimens with a cylindrical cavity model and with a hemi-spheroidal cavity model are prepared. The performance of the modified method to reconstruct the three-dimensional flaw is verified by using the experimentally measured waveforms.

Key Words: shape reconstruction, cross-sectional imaging, three-dimensional flaw, pulse-echo method

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