

Development of 1-3 Composite Measuring Sensor for Structural Damage Detection

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In this study, we developed an inspection device for detecting damage of structures using ultrasonic waves, and developed a system to measure a large area at once by attaching the inspection apparatus to a structure. Ultrasonic waves is one of the most widely used techniques for detecting damage to structures and applied to various fields. Ultrasonic inspection system is a system that excitation and senses by using one piezoelectric element, so it is difficult to inspect a large area. In this study, however, piezoelectric ceramic was fabricated as 1-3 composites and ceramic elements were controlled using matrix systems. After exciting the one ceramic element, signals measured from the surrounded ceramic elements were collected to detect structural surface defects in a large area. Acknowledgments This material is based upon work supported by the Ministry of Trade, Industry & Energy (MOTIE, Korea) under Sensor Industry Enhancement Program (20003125, Development of an ultraprecision measurement sensor based on the fiber composite for flaw detection of the composite structure).