



Journal of the Japan Society of  
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ONLINE ISSN : 1881-1760

PRINT ISSN : 1880-3717

**Journal of the Japan Society of Naval Architects and Ocean Engineers**

Vol. 1 (2005) pp.197-204

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## Study on Local Strain Distribution Measurement for Structural Members by using Piezoelectric Material and Sensor Array

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(Accepted May 16, 2005)

**Summary:** A new technique for surface strain distribution measurement has been developed by the use of piezoelectric material and sensor array. A piezoelectric element (PVDF film) is mounted onto the structure surface, and then electrical charge induced by the surface deformation is measured by sensor array at the multi point simultaneously. In this research, total system to measure strain distribution has been developed, which consists of the following parts; array sensor and signal processing circuit to measure a strain distribution of surface of material, circuit to transfer the measured data to personal computer, and software to process the measured results. The validity and accuracy of proposed technique is given by performing experiment using fatigue testing machine and then compare the result to the FEM analysis.

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To cite this article:

Didik R. Santoso, Eiji Shintaku and Yue Jingxia: Study on Local Strain Distribution Measurement for Structural Members by using Piezoelectric Material and Sensor Array, Journal of the Japan Society of Naval Architects and Ocean Engineers, (2005), Vol. 1, pp.197-204 .



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