The 40th Anniversary Event of the Foundation of JSNDI

NONDESTRUCTIVE TESTING & STRESS-STRAIN MEASUREMENT, FENDT '92

Volume II
Stress-Strain Measurement

October 12-14, 1992

Tokyo, Japan

Edited by

T. KISHI

S. TAKAHASHI

THE JAPANESE SOCIETY FOR NON-DESTRUCTIVE INSPECTION
(JSNDI)

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the Foundation of JSNDI

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(NDT&SSM, FENDT'92)

Proceedings of
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A Survey of Recent Stress-Strain Measurement in Japan

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1. Introduction

With recent remarkable technical developement, requirements for safety have been increasingly augmented, and with improvement of functions of various machines, conditions for using those machines have become more and more strict and exacting. In this connection, more and more rigorous technique of experimental stress analysis is being required, yet at the same time the area of its application is getting expanded to the extent of including other disciplines such as medicine.

Under these circumstances, techniques of experimental stress analysis are making progress with the years in Japan as elsewhere. A bird's-eye view of the whole picture would be something like this: researches related to computers are on the increase, together with studies on new measuring methods based on new principles. Included among them are such studies as attempt to enable formerly difficult measurement to enlarge its scope of application by partical improvement of the existing method, and studies that intend to enlarge former laboratory measuring method to field measurement by labor-saving of data processing. AS for the objects of reseach, such as are connected in some form with fracture mechanics(which is in much demand today) are becoming dominant. In regard to the methods of measurement, analytical methods making use of Caustics and Grid Method and X-rays are increasing together with analytical methods based on optical principles and strain gage methods, and those methods which are related to measurement of residual stress are also predominating.

The present situation of experimental stress analysis techniques in Japan will be described below. It is to be noted, however, that there are many excellent studies that are not mentioned here due to limited space. As for activities of learned societies on stress and strain analysis, numerous papers are read every year in the meetings of the Japan Society of Mechanical Engineers, Japanese Society for Nondestructive Inspection(JSNDI), Japan Society for Photoelasticity and so on, and the Symposium on Stress and Strain Measurement is held once a year.

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