

## FOREWORD

Which do we believe, the result by experiment or one by analysis when both are presented about the vibration behaviours of a cylindrical shell under the earthquake? This question came to me when I visited Tadotsu Engineering Laboratory of Nuclear Power Engineering Test Center to watch the shaking table test of the pressurized water reactor vessel.

Based on a striking development of numerical analyses such as the finite element method, a phrase of "Experiment by Numerical Analysis" or, in other words, "Soft Experiment" appeared in last 10 years or so, and it is often said that "Soft Experiment" may be used for so called "Hard Experiment." However, whenever we receive a large quantity of data produced by computer in succession, we should recognize that such a success of numerical analysis was just possible due to the accumulation of knowledge by observation of many damages in the earthquake and of "Hard Test," and moreover that numerical analysis could be powerfully used to interpolate between two known or established knowledges.

One of the roles of engineering research in universities is to wide the region for interpolation. With the aim of this purpose, new facilities for the research project of "Dynamic Response of Soil-Structure System and Failure Mechanism of Structures under Earthquake" have been installed by the members of Earthquake Resistant Structure Research Center at the Chiba Experimental Station of the Institute of Industrial Science.

*Y. Hangai*

Yasuhiko HANGAI  
Associate Professor  
Institute of Industrial Science  
University of Tokyo