

## New Members of ERS

- \* Dr. Mitsuro ISHIZUKA, Associate Professor in Knowledge-based Information Engineering, Institute of Industrial Science, University of Tokyo
- \* Dr. Tatsuo OHMACHI, Associate Professor in Civil Engineering, Tokyo Institute of Technology

## NEWS

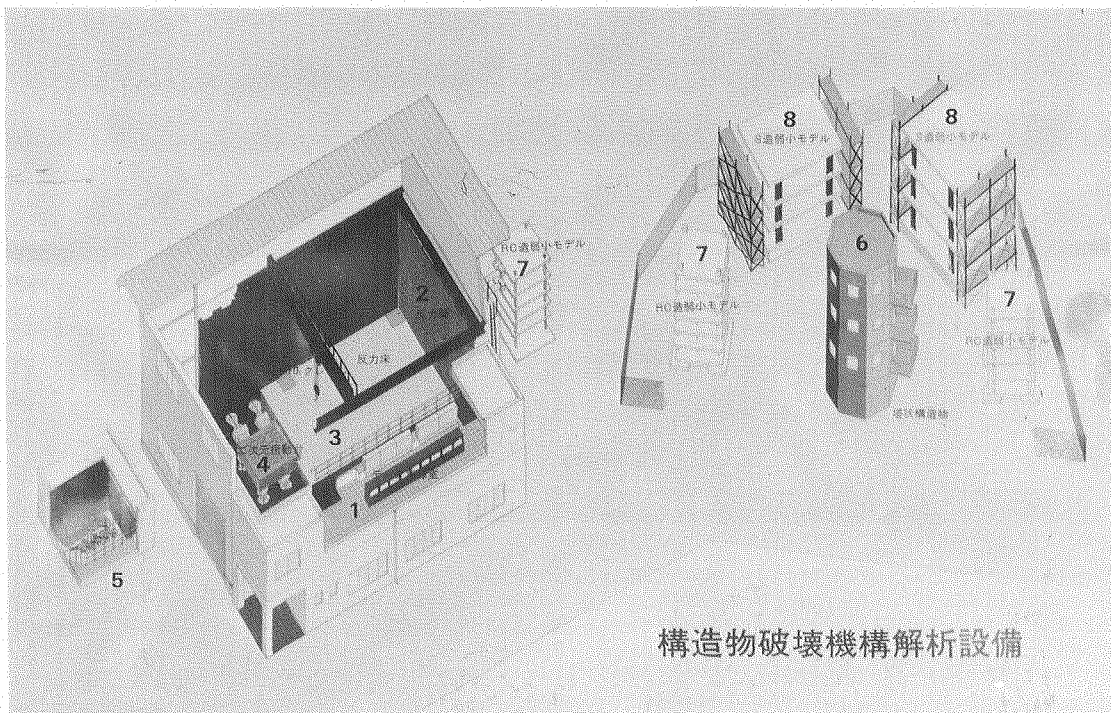
- \* Professor Keizaburo Kubo retired from the University of Tokyo on April 1, 1982, at the age of 60 according to the University's bylaws. Dr. Kubo has been widely known for his research in earthquake engineering and for his contributions to the earthquake-resistant design of various civil engineering structures. He graduated in 1945 from the Department of Civil Engineering, the Second Faculty of Engineering of the University of Tokyo. He was appointed to a lecturer of the University of Tokyo in 1946 and was promoted to an Associate Professor in 1948. After the Second Faculty of Engineering was closed, he continued to stay with the newly established Institute of Industrial Science and became a Professor of the University of Tokyo in 1963. He had served for the University of Tokyo over 36 years and for his distinguished service the University awarded him with the title of Professor Emeritus in May, 1982. Dr. Kubo is now a Professor of the Department of Construction Engineering, Saitama University, and is still very actively engaged in research and education in the field of earthquake engineering.
- \* The Japan-China Cooperative Research on Earthquake Engineering entered the second year of its program. This cooperative study was partially supported by the fund from the Kajima Foundation. The main activities in fiscal 1982 may be summarized as follows:
  - 1) Three Chinese scholars came to Japan to participate in the joint research program. They stayed in the Institute of Industrial Science, University of Tokyo, for three months from December 16, 1982, to March 15, 1983. The names, affiliations and research themes of the Chinese scholars were
    - Mr. Wang Kaishun, Chinese Academy of Building Research Earthquake-Resistant Design of Reinforced Concrete Buildings,
    - Mr. Yi Jianguo, Tong Ji University (Shanghai), Earthquake Response Analysis of Highway Bridges, and
    - Mr. Zhang Kexu, Institute of Engineering Mechanics (Harbin), Academia Sinica, Dynamic Properties of Soils and Earthquake-Resistant Design of Earth Dams.
  - 2) Professor F. Tatsuoka and Mr. S. Yamada (Research Assistant) of the Institute of Industrial Science visited China for the period between March 20 and April 3, 1983, to study the state-of-the-art of the soil dynamics in China and to give lectures on advanced soil testing methods currently used in Japan. Their visits included such places as the Chinese Academy of Building Research (Beijing), the Dalian Institute of Technology (Dalian), and the Tong Ji University (Shanghai).
- \* Professor J.T.P. Yao, Purdue University in U.S.A., visited to our Institute of Industrial Science on May 29, 1982 and gave a lecture on "Identification and Control of Structural Damage."
- \* Professor T. Paulay, University of Canterbury in New Zealand, Visited to our Institute of Industrial Science on September 20, 1982 and talked of new seismic design code of New Zealand.
- \* Dr. R.O. Davis, Reader of University of Canterbury in New Zealand, Visited to our Institute of Industrial Science on February 1, 1983 and

talked on "Comparison of Liquefaction Analyses."

- \* A study mission (the leader: Mr. Zhon Hong Ye) on the rail way alarm systems against the natural disasters visited us from China on March 7th and 8th in 1983. They discussed with ERS members on some topics we are interested in and have been to new facilities of earthquake engineering at Chiba Experiment Station.
- \* Professor Shibata was invited by University of Cordoba, Cordoba, Argentina for reviewing the aseismic design of Rio III Nuclear power station No. 1 CANDU type heavy-water reactor in April. During his stay in Argentina the Falkland Conflict was happen. After several days of returning Tokyo, he went to Keswick in England to attend Third Keswick International Conference on Vibration in Nuclear Plant and Presented the paper titled "Input Earthquake Motion for Vibration Test of Critical Equipment and Pipings of Nuclear Plant on an Earthquake Simulator". On the way back he visited the vibration laboratory of CEA in Saclay, France.
- \* Professor Shibata visited the United States in June and July. He made a survey on the area of the Great Alaska Earthquake-1964, and attended ASME PV & P Conference at Orlando, Florida, as a panelist for the panel on "Environmental, Dynamic and Seismic Qualification on Electrical and Mechanical Equipment". He visited NRC, BNL and other several cities also.
- \* Professor Shibata attended the US-PRC Bilateral Workshop on Earthquake Engineering in Harbin, PRC in August as an observer, and also visited Tangshan and other cities in PRC.
- \* The Aseismic Design Code for High Pressure Gas Facilities, which had been developed by Professor Shibata, was effective on April 1, 1982 by the order of the Minister of International Trade and Industry.
- \* Professor Shibata and the graduate student Mr. Ishibatake made the operability test of human operators on a shaking table.
- \* The seismic qualification test of one fourth model of PWR Containment Vessel was made in February 1983 by using the Tadotsu shaking table, NUPEC in Tadotsu, Shikoku Island. Professor Shibata and Assoc. Professor Fujita are strongly concerning this project sponsored by MITI. The capacity of this table is 1000 ton, and 3000 ton G-net in Horizontal, 3300 ton G-net in Vertical.
- \* Professor Takanashi and Research Associate Seki attended the international conference on Computational Methods and Experimental Measurements held at Washington D.C., June 30th-July 2nd.
- \* Associate Professor Y. Hangai and Technical Official M. Yoneda attended the International Conference on Finite Element Methods held at Shanghai in China, August 2-6.
- \* Research Associate H. Ohmori attended the Seventh European Conference on Earthquake Engineering held at Athens in Greece, September 20-25.
- \* Dr. Frans Molenkamp, a member of the research division of Delft Soil Mechanics Laboratory, the Netherland, stayed at Tatsuoka laboratory from 15th, March through 15th, August, 1982 to perform a cooperative study on the accuracy of soil testing. The results of the study were summarized as a report entitled by "Tentative Summary of Compression Tests, Pull-Out Tests on Grease," Oils and Lubrication Layers Performed during March through August, 1982. The copies are available on request to Professor Tatsuoka.
- \* Professor Tatsuoka visited Delft Soil Mechanics Laboratory from August through September 1982 to perform a cooperative study with Dr. Frans Molenkamp and also to attend the IUTAM Conference on Deformation and Failure of Granular Materials, Delft, 31 Aug.-3 Sept. 1982, with being sponsored by Miyoshi Research Fund of Institute of Industrial Science.

- \* A large triaxial apparatus was designed by the members of Tatsuoka laboratory and their parts were mainly made by the staff of the central workshop of the institute. Cyclic and monotoneous loading tests on sand or gravel samples with a diameter of 30cm and a height of 60cm can be performed.
- \* A comprehensive observation system has been completed in the Chiba Experiment Station of the Institute of Industrial Science to investigate the properties of seismic-induced ground strains. It consists of 1) a dense array of 36 three-component borehole accelerometers on and in the ground, 2) three sets of relative displacement meters directly buried in ground in three different directions, and 3) strain gauges and transducers for relative motions across joints attached to buried steel and ductile-cast-iron pipes, both of 150 mm in diameter and each with some 120 m. The dense seismometer array has been in operation since April, 1982, while the rest of the system was completed in December, 1982. Although several weak earthquake motions have been recorded so far indicating that the system is in the good operating condition, strong motions of engineering importance are yet to be recorded.
- \* The research project of "Dynamic Response of Soil-Structure System and Failure Mechanism of Structures under Earthquake" was launched in 1981 by the members of Earthquake Resistant Structure Research Center, and new facilities have been installed at the Chiba Experimental Station of the Institute of Industrial Science. The research items of this project are
  - (1) Recording of earthquake motions by the dense seismometer array
  - (2) Response and Failure Observation of weak reinforced concrete structure models under earthquakes
  - (3) Response and failure observation of weak steel structure models under earthquakes
  - (4) Observation of soil-structure interaction system by use of the reinforced concrete tower
  - (5) Observation of machines on the earthquake isolation floor settled in the third floor of the tower
  - (6) Experiment of models by the dynamic testing facilities.

New dynamic testing facilities are consisted of (a) testing floor with L-shaped reaction wall, (b) electro-hydraulic actuators, (c) two dimensional (horizontal and vertical) shaking table, (d) digital computer (e) observation system of earthquake motions, as well as of strains, displacements and accelerations of both weak structures and the tower by data recorders, cameras and video cameras.



1. Room for Data Recording
2. Reaction Wall
3. Testing Floor
4. Two-Dimensional Shaking Table
5. Hydraulic Power Supply
6. RC Tower
7. Weak RC Structure Models
8. Weak Steel Structure Models

New Facilities for the Project of "Dynamic Response of Soil-Structure System and Failure Mechanism of Structures under Earthquake"