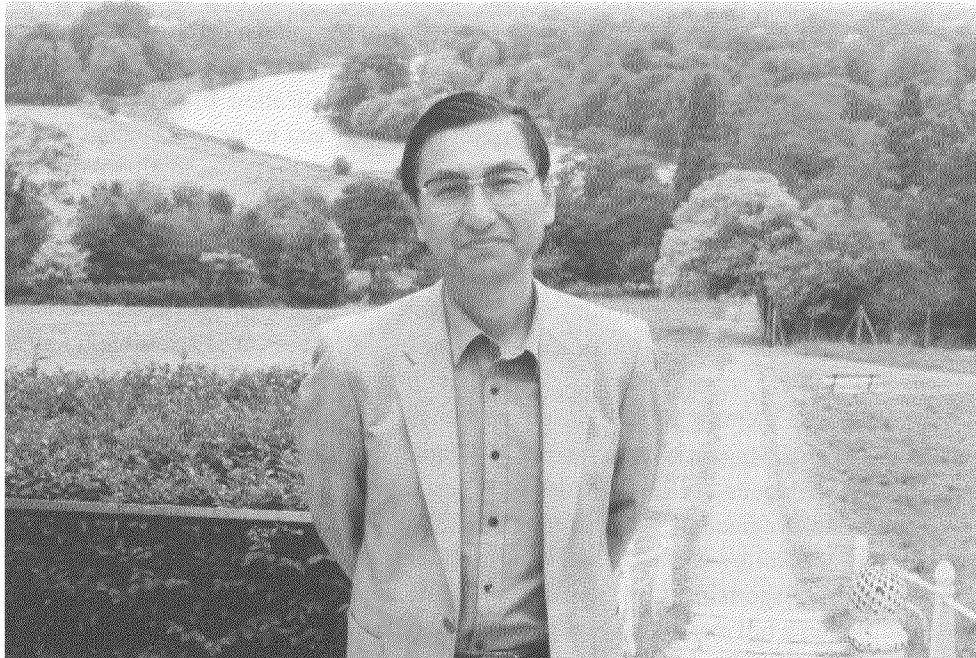


OBITUARY

Dr. YASUHIKO HANGAI

1942-1998



Dr. Yasuhiko Hangai, the representative of ERS, a Professor of the University of Tokyo and an internationally recognized outstanding researcher, passed away on August 9, 1998. All the members of ERS were deeply shocked at this sad news. His demise was so sudden and he was so young and so active that it is very hard to accept this untimely end.

Yasuhiko Hangai was born in Fukushima, Japan in 1942. He pursued his studies in structural engineering at the University of Tokyo. During his graduate studies, he was affiliated with the laboratory of Dr. Yoshikatsu Tsuboi, the great researcher and engineer of shell structures.

He began his academic career in 1969 as a research associate at the Institute of Industrial Science, University of Tokyo and subsequently earned his Doctor of Engineering at the same university for his studies on the nonlinear analysis of lightweight structures. He started his research on tracing nonlinear equilibrium path of

shallow space frames by means of static perturbation method. Then he gradually extended his interest to the general nonlinear problems of analysis, such as nonlinear vibrations, large displacements, unilaterally constrained systems and inverse problems of structures.

He was one of the pioneering researchers in the application of the theory of the generalized inverse to the field of structural engineering. With this, he overcame the problem of matrix singularity which made it possible to trace large deformation process of extremely flexible systems, such as cable structures or membrane structures, without any fundamental difficulties. His earliest papers on application of the generalized inverse appeared in the Solid Mechanics Archives in 1981 and in the proceedings of the International Conference on Finite Element Methods in 1982. He wrote a book on the application of the generalized inverse to computational mechanics in 1991 in Japanese, which is now under translation into English.

He was a gifted leader in the field of structural analysis. His latest interest was to cultivate a new field of structural analysis, for the generation of good, but not necessarily optimum, shapes for structures by means of numerical analysis techniques. He named the field Shape Analysis. His activity in this field was expanding.

He served as a member of the Executive Council of the International Association for Shell and Spatial Structures (IASS) since 1987 and he held many important positions in Japanese associations such as Architectural Institute of Japan and Japan Society for Computational Engineering and Science (JSCES). He was the recipient of awards from many academic societies in the world.

He was also a sports-man. He loved climbing mountains and playing tennis with his friends. He ran a full marathon every year. He was so energetic and human.

He was a person who was giving guidance to us, the younger generation in the ERS members. His friends, colleagues and students will miss a distinguished researcher and a truly likeable man, who always wore a friendly and gentle smile. He will be long remembered for his contributions to the field of structural engineering as a pioneering researcher, and for his worldwide activities as an outstanding representative of the Japanese structural engineering academic community.

K. Kawaguchi

LIST OF PAPERS BY MEMBERS OF
EARTHQUAKE RESISTANT STRUCTURE RESEARCH CENTER

SEISAN-KENKYU : Monthly Journal of the Institute of Industrial Science.
The University of Tokyo

JSCE	: The Japan Society of Civil Engineers
JSME	: The Japan Society of Mechanical Engineers
AIJ	: The Architectural Institute of Japan
JCI	: Japan Concrete Institute
JSSC	: The Japan Society of Steel Construction
JGS	: The Japan Geotechnical Society
*	: Written in Japanese

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NEWS

Professor K. Konagai attended *the 1998 Specialty Conference on Geotechnical Earthquake Engineering and Soil Dynamics* sponsored by the Geo-Institute of the ASCE, Seattle, Washington, USA, August 3-6.

Professor X. Kong, Dalian University of Technology, visited Konagai Laboratory, Sept 7 - Sept. 25 to exchange information regarding shake table tests

Dr. T. Matsushima had 1 year stay (August 27, 1997 - Sept. 10, 1998) at the Laboratoire 3S, Grenoble, FRANCE.

Mr. Escandari G. Morteza, Lecturer at both Tehran Univ. and Mazandaran Univ. have stayed for about 6 months (Feb. 12, 1998 - July. 27, 1998) at Konagai Laboratory for a collaborative research of Dynamic Soil-Structure Interaction analysis.

Professor K. Konagai, Dr. M. Mikami, Mr. T. Katagiri, Mr. R. Ahsan and Mr. Maruyama visited Iwate prefecture on September 5-7, 9-11 to investigate the damage caused by the Mid-North Iwate Earthquake of September 3, 1998.

Professor Y. Nakano attended *ESNS International Seminar on New Building Thechnique for the 21st Century* held in Seoul Korea, 2-8, February, 1998

Professor Y. Nakano attended *the Second Japan-UK Workshop on Implications of Recent Earthquakes on Seismic Risk* held in Tokyo, JAPAN, from April 6 to 8, and presented his paper.

Professor Y. Nakano attended *CEB/fibGB 3/5 meeting on Fastenings to Concrete* held in Greece, 25, May -5, June 1998

Professor Y. Nakano attended *ESNS International Seminar on Seismic and Wind Design of Buildings and its Applications* held in Seoul, Korea, 2-6, December 1998

Professor F. Yamazaki attended *the Second Japan-UK Workshop on Implications of Recent Earthquakes on Seismic Risk* held at Tokyo Institute of Technology from April 6 to 9, 1998. The workshop was partially supported by the British Council and 10 UK and other Europeans papers were presented as well as 21 Japanese papers.

Professor F. Yamazaki attended *the 12th Engineering Mechanics Conference of ASCE* held in La Jolla, California from May 17 to 20, 1998. He presented a paper on H/V spectrum ratio of strong ground motion and served as a session co-chairman

Professor F. Yamazaki attended *the INCEDE-MCEER Center-to-Center Project Workshop on Earthquake Engineering Frontiers in Transportation Systems* held at "Heart in Nogizaka", Roppongi, Tokyo from June 22 to 23, 1998

Professor F. Yamazaki attended *the third China-Japan-US Trilateral Symposium on Lifeline Earthquake Engineering*, held in Kunming, Yunnan Province, China from August 4 to 7, 1998. The symposium was organized by Engineering Seismological Research Center of China Seismological Bureau, Kobe University, and Old Dominion University, USA.

Professor F. Yamazaki attended *the International IDNDR-Conference on Early Warning Systems for the Reduction of National Disasters (EWC'98)* held in Potsdam, Germany from September 7 to 10, 1998. He served as a convenor of the session "Early warning systems for rapid damage assessment and the mitigation of technological risk". He also delivered an invited lecture on the topic and served as a panelist of the panel discussion "Future technology needs, accessibility, availability and affordability of early warning systems"

Professor F. Yamazaki participated in *the First Joint Research Coordination Committee Meeting of U.S.-Japan Cooperative Research on Urban Earthquake Hazard Mitigation*, held at Sanjo Conference Hall of the University of Tokyo on October 7 and 8, 1998. In the meeting, the research plan of the joint research project was discussed by the U.S. and Japanese coordination committee members.

Professor F. Yamazaki attended *the Multi-lateral Workshop on Development of Earthquake and Tsunami Disaster Mitigation Technologies and its Integration for the Asia-Pacific Region* held in Kobe from September 30 to October 1, 1998. He served as a chairman of the working group. *Disaster Risk Assessment and Management*. The workshop was sponsored by the Science and Technology Agency and the Earthquake Disaster Mitigation Research Center (EDM), RIKEN.

Professor J. Koseki attended *ASCE specialty conference on Geotechnical Earthquake Engineering and Soil Dynamics* held in Seattle, USA, 3 - 6 August 1998.

Professor J. Koseki attended *International Workshop on The Physics and Mechanics of Soil Liquefaction* held in Baltimore, USA, 10 - 11 September 1998

Professor K. Kawaguchi attended *IASS-LSA Conference on Lightweight Structures in Architecture Engineering and Construction* held at Sydney in Australia, 5-9, October 1998.

Professor K. Kawaguchi attended *IASS-IUTAM Conference on Deployable Structures* held at Cambridge in UK, 6-9, September, 1998.

Professor Y. Hangai and Professor K. Kawaguchi invited Professor P.Gould and Professor S.Sridharan from the Washington University to the IIS to have lectures on the advanced analytical schemes for shell structures

Professor K. Kawaguchi and Professor from the Washington University went Nagoya together to attend *the symposium on the seismic design of spatial structures*, organized by Disaster Prevention Research Institute of the Kyoto University, 16-17, October 1998.

Professor K. Meguro visited AIT (Asian Institute of Technology) to give lectures on "Seismic Risk Assessments and Aseismic Design of Structures" at the "Training Course for Engineering Applications and Practice" during the period of April 14-21, 1998, Bangkok, Thailand.

Professor K. Meguro attended *the First Iran Workshop on Recent Earthquakes in Iran & Japan* during the period of May 16-18, 1998, Tehran, Iran. He made presentations and exchanged information on experience from recent earthquakes.

Professor K. Meguro attended *the Planning Meeting of the US-Japan Cooperative Research Project for Urban Earthquake Mitigation* on June 6, 1998, Kyoto, Japan.

Professor K. Meguro attended *the World Urban-Earthquake Conference* during the period of June 26-28, 1998, Fukui, Japan. He made presentation on the effects due to power outage on city functions and joined the panel discussion as one of the panelists.

Professor K. Meguro attended *Center-to-Center Project Meeting* held in Newport Beach, California, USA, from 22 to 26 August, 1998.

Professor K. Meguro attended the Multi-lateral Workshop on Development of Earthquake and Tsunami Disasters Mitigation Technologies and Its Integration for the Asia-Pacific Region during the period of September 30 to October 2, 1998, Kobe, Japan.

Professor K. Meguro and Dr. Hatem Tagel-Din, post doctor fellow, attended *the Third International Conference on Fracture Mechanics of Concrete and Concrete Structures* and made presentation on their newly developed numerical model for structural collapse analysis from 12 to 16 October, 1998, Gifu, Japan.

Professor K. Meguro visited Tehran as a academic advisor of preliminary survey for JICA Project on Microzonation of Tehran City during the period of December 14-19, 1998, Tehran, Iran. He is serving the project as a chairperson of the Advisory Committee of the project.

Professor K. Meguro attended *the Conference of US-Japan Cooperative Research on Urban Earthquake Disaster Mitigation* during the period of January 11-14, Kobe, Japan. He made a presentation and joined group discussion.

Professor K. Meguro attended *the Second WSSI (World Seismic Safety Initiative) Asia-Pacific Workshop* during the period of January 18-20, 1998, Bangkok, Thailand. He served as a chairman of the discussion session.

Professor K. Meguro participated in the RADIUS (Risk Assessment Tools for Diagnosis of Urban Areas against Seismic Disaster) Expert Meeting from 1 to 3 March, Tokyo, Japan.

Professor K. OHI attended *the Second Japan-UK Workshop on Implications of Recent Earthquakes on Seismic Risk* held in Tokyo, JAPAN, from April 6 to 8, and presented his paper.

Professor K. OHI attended *the Structural Engineers World Congress(SEWC'98)* held in San Francisco, USA, from July 19 to 23, and presented his paper.

Professor K.OHI, Research Associate Dr. S.J LEE, Technical Associate Mr. H. KONDO, and Graduate Student Mr. N.YAMAMOTO attended *the 5th Pacific Structural Steel Conference(PSSC'98)* held in Seoul, Korea, from October 13 to 16, 1998, and presented their papers.

Professor K. Sudo made Key-note talk on the RADIUS project by the United Nations in Symposia at Institute of Structural Engineering and at Institute of Seismology and Geophysics, Tashkent of Uzbek Republic, March 28-April 6, 1998

Professor K. Sudo and Dr. Tsuneo Katayama attended *the 9th session of WSSI Board Director Meeting* to discuss implementation plan, Seattle of USA, May 30-June 2, 1998.

Professor K. Sudo, Professor Kimiro Meguro and Dr. Dushmanta Dutta made presentations on Outcomes from the CtoC Project on Post Urban Earthquake Disaster Reconstruction in CtoC Workshop, Los Angeles of the United States, August 22-27, 1998.

Professor K. Sudo lectured on Institute Re-Structuring Reflecting Third Party Evaluation at Cheraloncon University, Bangkok, the Thailand, October 5-7, 1998.

Professor K. Sudo made key Note talk on the RADIUS Project by the United Nations in RADIUS workshop, Zigong of China, October 12-17, 1998.

Professor K. Sudo made key Note talk on the RADIUS Project by the United Nations in RADIUS workshop, Tashkent of Uzbek Republic, November 10-15, 1998.

Professor K. Sudo, Professor K. Meguro and Dr. Dushmanta Dutta made presentations on Global Activities on Earthquake Disaster Reduction with emphasis on INCEDE's Activities at WSSI Workshop, Bangkok of the Thailand, January 17-20, 1999.

Professor K. Sudo and Dr Tsuneo Katayama attended *the 10th session of WSSI Board Director Meeting* to discuss implementation plan, Singapore, January 21-24, 1999.

Professor K. Sudo made presentation on Disaster Simulator on Multi-Media in Workshop on US-Japan Joint Project on Urban Earthquake Disaster Reduction, Sonoma of California, USA, March 18-22, 1999.

MEETINGS OF EARTHQUAKE RESISTANT STRUCTURE RESEARCH CENTER

April 30, 1998

Speaker: Dr. Kimiro MEGURO (Associate Professor, IIS, The University of Tokyo)
Mr. Masaya HARADA (Graduate Student)
Topic: Evaluation of Urban Space and Facilities from the Viewpoint of User's Evacuation"
Speaker: Mr. Hatem Tagel-Din (Graduate Students)
Dr. Kimiro MEGURO (Associate Professor, IIS, The University of Tokyo)
Topic: A New Simulation Model for Fracture Behavior of Structures with High Accuracy and Wide Application - Part 2-

May 22, 1998

Speaker: Dr. Kazuo KONAGAI (Professor, IIS, The University of Tokyo)
Topic: Simulation of structural damage accumulation and energy influx and efflux through virtual soil-structure interface in a shaking table test

June 19, 1998

Speaker: Dr. Syoichi NAKAI (Professor, The Chiba University)
Topic: Estimation of ground condition based on the land use in the old times.
Speaker: Dr. Yasuhiko HANGAI (Professor, The Chiba University)
Topic: Bott-Duffin Inverse Inverse and its application to shape control of structures

July 31, 1998

Speaker: Dr. Hideyuki AZEGAMI (Professor, Toyohashi University of Technology, Visiting Professor of IIS)
Topic: Solution Methods for Shape Optimization Problems

September 18, 1998

Speaker: Dr. LEE Seung-Jae (Research Associate, IIS, The University of Tokyo)
Topic: Seismic Behavior of Multi-bay Steel Frames with Eccentrically Located Braces
Speaker: Dr. LIN Xiao-Guang (Lecturer of Osaka Institute of Technology, Adjunct Research Fellow of IIS)
Topic: Seismic Behavior of Steel Frames with Semi-rigid Connections

October 16, 1998	
Speaker:	Mr. Kaoru KUSANO, Mr. Yoshimi OGAWA and Mr. Hiroshi MORI (Institute of Civil Engineering, Tokyo Metropolitan Government)
Topic:	Liquefaction Susceptibility Assessment in Tokyo Metropolitan Area
November 20, 1998	
Speaker:	Dr. Takafumi FUJITA (Professor, IIS, The University of Tokyo)
Topic:	Seismic Isolation of Nuclear Fusion Reactor Plants
Speaker:	Mr. Shuichi YABANA (Central Research Institute of Electric Power Industry)
Topic:	Mechanical properties of laminated rubber bearings for three-dimensional seismic isolation
Speaker:	Mr. Akihiro KASHIWAZAKI (Ishikawajima-Harima Heavy Industries Co.)
Topic:	Three-Dimensional Seismic Isolation System Using Hydraulic System
December 11, 1998	
Speaker:	Dr. Masana NISHIKAWA (Science Solution International)
Topic:	Can the CUBE find audience in the economic market?
January 29, 1999	
Speaker:	Dr. Yoshiaki NAKANO (Associate Professor, IIS, The University of Tokyo)
Topic:	Recent Seismic Retrofit Techniques of Existing RC Buildings in Japan
Speaker:	Dr. Keiji KITAJIMA (Technical Research Center, Aoki Corporation)
Topic:	Research and Development of Response-Control Retrofitting Method by means of Friction Damper
February 26, Friday	
Speaker:	Osamu MURAO (Research Associate, IIS, The University of Tokyo)
Title:	Comparison of Building Damage Evaluation after the 1995 Hyogoken-Nanbu Earthquake
Speaker:	Dr. Fumio Yamazaki (Professor, IIS, The University of Tokyo)
Topic:	Earthquake Damage Detection using Airborne and Satellite Remote Sensing Technologies