

Association of Professional Engineers
of the
Province of Manitoba

Merit Award

to

TAI-RAN HSU

B.Sc.M.E., M.Sc., Ph.D., P.Eng.

Tai-Ran Hsu received his Bachelor of Science degree in Mechanical Engineering in 1959 from the National Cheng Kung University in Taiwan, China; his Master's degree at the University of New Brunswick in 1963 and his Ph.D. at McGill University in 1968.

Tai-Ran joined the Montreal Locomotives Works as a Design Engineer in 1962. In 1964, he was employed as a Senior Design Engineer with Combustion Engineering-Canada where he was involved in the design of large steam and nuclear power plant equipment and high temperature superheater stress analysis. In 1968, he was the Group Leader for the design of brittle (ceramic) nuclear reactor core components at the Whiteshell Nuclear Research Establishment. In 1970, he joined the General Electric Company in Schenectady, New York and worked for one year as a development engineer in the large steam turbine division. In 1971, Tai-Ran joined the Department of Mechanical Engineering at the University of Manitoba and became the Professor and Head of that Department in 1986.

His career has lead him into modern research into solid mechanics. He is noted for his work in finite element analysis on thermal and mechanical behaviour of nuclear reactor fuel elements; heat, phase and mass transfer in solids; and fatigue, creep and fracture of solid structures under combined thermal and mechanical loading. He has developed a new technique for the enhancement of sheet metal strength involving a thermal shock method using laser beams. Tai-Ran has developed an integrated approach to Computer-Aided Design in manufacturing. He has written three technical books and published over 100 technical papers.

Tai-Ran is extremely active on numerous technical committees and professional societies. He is a member of the Research and Development Committee of the Association of Professional Engineers of the Province of Manitoba and has assisted the Association on several occasions by setting and marking examinations for the Association's annual examination program. He is the Vice-President of the Canadian Society for Mechanical Engineering for the Prairie Region. He also served as a member and the Chairman of the Mechanical Engineering Grant Selection Committee for the Natural Sciences and Engineering Research Council of Canada (NSERC). As a firm believer of active university-industry interaction, he has successfully initiated and facilitated several major undertakings, such as, NSERC Industrial Research Chair Professorships and an active industrial involvement in student projects.

He is a founding Director of the Chinatown Non-Profit Housing Corporation and the founding Director and Past President of the Manitoba Academy of Chinese Studies. He has found time to coach soccer teams, a basketball team and be a time-keeper for hockey games.

Tai-Ran and his wife Grace have two daughters and one son: Jean, Euginette and Leigh.

In presenting this Merit Award the A.P.E.M. wishes to acknowledge Tai-Ran Hsu's significant contributions as an engineer and a member of the community.

October 27, 1989