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Ching-Churn Chern is a professor emeritus in Department of Civil Engineering at National Taiwan University since 2002. He received his B.S. and M.S. degrees in Civil Engineering from National Taiwan University in 1960 and 1964 respectively, and received another M.S degree major in Structural Mechanics from Department of Civil Engineering at Northwestern University, USA in 1976. He has been joining the teaching and researches in the Department of Civil Engineering at National Taiwan University since 1964 for longer than 45 years. He was the Director of Earthquake Engineering Research Center at National Taiwan University during 1980-1985, and the Director of Taiwan Construction Research Center in 1985-1988. His research interests are in the areas of structural hazards mitigation, structural health monitoring, and assessments on the structural stability and structural ultimate capacity.

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Advanced Studies on Health Monitoring and Warning System for Electric Power-Transmission Towers

The safety and stability of the steel towers essentially influence the reliability of electric power supply of transmission lines in Taiwan. These steel truss towers are composed of suspension towers, strain towers and terminal towers. The identification of structural damage is essential purpose of structural health monitoring for these towers. The dynamic behaves for healthy towers and damaged towers have to be studied at very beginning. Also the ultimate strength or maximum capacity of towers in resisting strong earthquake or strong wind dealing with elasto-plastic deformations, dynamic behavior and stability should be assessed very carefully type by type. The warning system could be studied and established primarily by applying the on-line recursive and identification technique by applying such as HHT (Hilbert-Huang Transformation) adaptive data analysis methods, etc. The series research works for the related towers should be established for a long investigation.