Tin-Kan Hung
Professor of Bioengineering and Civil Engineering
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Professor Hung received his B.S. in Hydraulic Engineering in 1959 from the National Cheng Kung University, Tainan; M.S. in Civil Engineering in 1962 from the University of Illinois, Urbana-Champaign; and PhD in Mechanics and Hydraulics in 1966 from the University of Iowa. He served as a research engineer and instructor for a year at the Iowa Institute of Hydraulic Research. As an assistant professor, he jointed Professor George Bugliarello at Carnegie-Mellon University in 1967 to develop bioengineering education and research and became an Associate Professor in 1970. Since1975 he has worked for the University of Pittsburgh as a Research Professor of Bioengineering, Civil Engineering and Neurosurgery. Currently he is Professor of Bioengineering in the Department of Bioengineering.

Dr. Hung's research activities began in early sixties at the Iowa Institute of Hydraulic Research. He was engaged in numerical solutions of the Navier-Stokes equations and studied two-dimensional and axisymmetric laminar flows in conduit expansions. He compared the kinematic and dynamic characteristics of laminar vortices in steady and unsteady flows. His activities were extended to numerical solutions of non-Newtonian flow and density stratified flow. He investigated a time-dependent axisymmetric spiral flow and blood flow past heart valves, and conducted computational and experimental investigations of nonlinear peristaltic flow, creeping flow with particles, microcirculation, transport processes in oxygenators, and membrane oxygenation in animal experiments. Other challenging computational analyses included pulsating blood flows through distensible stenotic arteries, pulsating flows in rigid and distensible curved arteries, intra aortic balloon pumping, intra vena-cava balloon pumping, and cardiac pumping.

Another new research developed by Hung was the biomechanics of experimental spinal cord injuries. He successfully conducted in-vivo measurements of viscoelastic properties of animal spinal cords. The neurological sequelae of cats and dogs were correlated with the experimentally induced stress and deformation on the spinal cords.

Professor Hung also interested in earthquake hydrodynamic analyses. He investigated nonlinear hydrodynamic pressures on dam with surface waves and dam vibrations, and. studied sediment effects on reservoir's natural frequencies and dynamic pressures on dam.