

AMERICAN SOCIETY OF CIVIL ENGINEERS

2009 Society Award Winners Announced

Peurifoy Construction Research Award

The Peurifoy Construction Research Award is made to an individual who has made an outstanding contribution to the advancement of construction engineering through research and development of new technology, principles or practice.



Photios G. Ioannou, Ph.D., P.E., M.ASCE is the recipient of the 2009 **Peurifoy Construction Research Award** for his research and development contributions which have advanced and defined the state of the art in construction engineering and management technologies, principles, and practices particularly in the areas of tunneling, bidding theories, innovative project delivery systems and construction simulation. In tunneling, professor Ioannou investigated the impact of structural design conservatism in underground construction and the economic value of geologic exploration as a risk mitigation strategy, which resulted in a series

of major computer-based decision support systems, including a probabilistic geologic prediction model, an interactive graphics system for assessing tunnel design and construction decisions, a stochastic estimating model, and a reliability-based evaluation model for future exploration programs. In the area of dynamic risk-sensitive Markov decision processes with discounted rewards, Professor Ioannou formulated and solved the general decision problem using recursive algorithms for transient and steady-state optimal policies for time-varying and stationary processes, and he applied this model to the equipment-replacement and tunnel excavation and support selection during construction. His pioneering work in innovative project delivery systems developed multi-attribute models to evaluate private companies as promoters of large infrastructure projects using Build-Operate-Transfer (BOT) or Build-Operate-Own (BOO) arrangements, and the attractiveness of infrastructure projects for private promotion. Professor Ioannou's work in discrete-event simulation of construction operations has resulted in several systems that have had significant impact in construction graduate education and professional practice. In particular, the Stroboscope system is recognized as one that defines the state of the art in construction simulation today. Professor Ioannou has also made unique contributions in competitive bidding models.