

10TH GERALD A. LEONARDS LECTURE

Understanding Soil Properties and Behavior – Recent Developments

Dr. Carlos Santamarina

Goizueta Foundation Professor, Georgia Institute of Technology

April 13, 2012 - 4:30 p.m.

Purdue Memorial Union East Faculty Lounge, Purdue University

G.A. Leonards advanced the understanding of soil behavior in the context of foundation engineering, with major contributions to sands (shape, fabric, stiffness and strength) and clay-water systems (consolidation, memory, stabilization). Furthermore, he provided unprecedented insight into phenomena that include dynamic compaction and vibration-induced subsidence, deformation localization along weak seams, frozen ground heave, stress history and K_0 , piping and erosion. The presentation revisits these phenomena with renewed interest, prompted in part by emerging challenges such as those that arise in the context of energy geotechnology.



J. Carlos Santamarina is the Goizueta Professor in the School of Civil and Environmental Engineering at the Georgia Institute of Technology. His research team explores the scientific foundations of soil behavior and subsurface processes at the particle- and pore-scales to advance geotechnical engineering solutions in the area of energy geotechnology (efficiency, conservation, resource recovery, storage, and waste utilization). He holds a Ph.D. from Purdue University, an M.S. from the University of Maryland and a BSc from Universidad de Cordoba.

Dr. Santamarina is a member of both Argentinean National Academies (Sciences and Engineering); and a member of the standing Committee on Geological and Geotechnical Engineering at the USA National Academies. He is a recipient of a number of prestigious awards including the ASTM Hogentogler Award.

Introduction by Professor Emeritus, Vincent Drnevich, Purdue University

The lecture is free and open to the public

***Presented in conjunction with the 10th Purdue Geotechnical Society Workshop
“Geotechnical Engineering: Crossing Boundaries”***

The Purdue Geotechnical Society was founded in May 2003 to enhance the strong bond and working relationship among alumni, faculty, students, and staff of the Geotechnical Engineering group at Purdue University for the benefit of all.

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10TH GERALD A. LEONARDS LECTURE

The Leonards Lecture was established in 2003 in honor of Professor Gerald A. Leonards, one of the giants of the geotechnical engineering profession.

Professor Gerald A. Leonards was born on April, 29, 1921 in Montreal, Quebec, Canada. He obtained his BSCE at McGill University in 1943 and received both MSCE and PhD from Purdue in 1948 and 1952, respectively. He was a faculty member at Purdue from 1952 to 1991, when he was named Professor Emeritus.



G.A. Leonards

Professor Leonards' research interests were very wide and he made pioneering contributions to knowledge on strength and compressibility of compacted clay soils, strength and consolidation of natural deposits, cracking of earth dams, frost action, analysis of buried conduits, pile foundations, stability of slopes and embankments on soft clays, stress-deformation and liquefaction of sand, and methodologies for investigating failures. He published extensively nationally and internationally. His 1962 book on "Foundation Engineering" quickly became a standard reference worldwide.

Throughout his career, Dr. Leonards' insight and expertise was sought on earthwork and foundation projects all over the world, a number of which involved the investigation of failures. He was appointed as the only non-European to sit on an official government commission in Italy to investigate ways to stabilize the Tower of Pisa.

Over his career Dr. Leonards received numerous awards from professional societies. In 1980 he was honored by the American Society of Civil Engineers by being asked to present the Terzaghi Lecture and also received the Terzaghi Award in 1989. In 1988 he was elected to the National Academy of Engineering.

From the students' perspective, "GAL" was a dedicated professor and researcher, who never missed an opportunity to learn more about his chosen field and to share his views on new developments. His influence continues to be felt through the impact he had on his students and colleagues.

Adapted from text by V.P. Drnevich for Geotech Hall of Fame Web Site

Previous G.A. Leonards Lecturers

1st Leonards Lecture	May 22, 2003	Milton Harr
2nd Leonards Lecture	May 11, 2004	Victor Milligan
3rd Leonards Lecture	May 16, 2005	Robert Holtz
4th Leonards Lecture	March 31, 2006	Michele Jamiolkowski
5th Leonards Lecture	May 7, 2007	Suzanne Lacasse
6th Leonards Lecture	April 18, 2008	Jean-Lou Chameau
7th Leonards Lecture	April 24, 2009	Bernard Amadei
8th Leonards Lecture	May 1, 2010	Richard D. Woods
9th Leonards Lecture	April 8, 2011	Herbert Einstein

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