Professor Thomas L. Geers

See:
http://www.me.colorado.edu/#!emeritus-faculty-/c24y5
http://media.wix.com/ugd//1ec2d5_5f9ff38428c6d74591fc2e9a10abdb86.pdf

Professor Emeritus
Department of Mechanical Engineering
University of Colorado Boulder, Colorado, USA
Structural Dynamics, Finite and Boundary Element Methods

Formerly with: Lockheed Palo Alto Research Laboratory, Palo Alto, California 94304

Education:
Ph.D. Applied Mechanics, MIT
M.S. Mechanical Engineering, MIT
B.S. Physics, MIT

Research Interests:
Structural acoustics; Structural dynamics, Bubble dynamics, Computational dynamics
"My research in structural acoustics has focused on transient fluid-structure interaction, with applications to the shock-response analysis of naval structures. Recent work on the dynamics of dry structures has emphasized the shock-response analysis of hard disk drives. The research on bubble dynamics has addressed large bubbles associated with underwater explosions. Finally, the preceding has been directed toward the use of finite-element and boundary-element computational methods to treat complex engineering problems."

2001 Recipient of SAVIAC's Melvin L. Baron Award:
SAVIAC's (Shock And Vibration Information Analysis Center) most prestigious honor, the Melvin L. Baron Award, was presented to Professor Thomas L. Geers, for his pioneering work in numerical simulation methods and tools that analyze the response of submarines and surface ships to underwater explosions. He is one of the community's outstanding researchers. The award was named for one of Weidlinger Associates's founding principals, Dr. Melvin L. Baron, in recognition of his technical contributions and leadership in computational structural dynamics and shock- and vibration-related specialties. The award is given for unique contributions to the field as well as for lifetime achievement.

Selected Publications:

T.L. Geers, "Residual Potential and Approximate Methods for Three Dimensional Fluid Structure Interaction Problems," Journal of the Acoustical Society of America 49,5,2 (1971), 1505-1510.

C.A. Felippa, T.L. Geers and J.A. DeRuntz, "Response of a Ring-Stiffened Cylindrical Shell to a Transient Acoustic Wave," Lockheed Palo Alto Research Laboratory report LMSC-D403671, 1974.

Geers, Thomas L., "Doubly Asymptotic Approximations for Transient Motions of Submerged Structures", The Journal of the Acoustical Society of America, Vol. 64, pp 1500-1508, 1978

Geers TL, Felippa CA. Doubly asymptotic approximations for vibration analysis of submerged structures. Journal of Acoustical Society of America, 1980, 73:1152-1159

DeRuntz, J.A., Geers, T.L., and Felippa, C.A. — The Underwater Shock Analysis Code (USA-Version 3): A Reference Manual, Final Report No. LMSC-0777843, Lockheed Missiles and Space Co., Inc., Palo Alto, CA (1980).

Geers, T.L., Felippa, C.A., 1983. Doubly asymptotic approximations for vibration analysis of submerged structures. The Journal of the Acoustical Society of America 73, 1152–1159.

T.L. Geers, "An Objective Error Measure for the Comparison of Calculated and Measured Transient Response Histories," Shock and Vibration Bulletin 54,2 (1984), 99-107.

Felippa, C.A., and Geers, T.L. — Partitioned Analysis for Multi-disciplinary Problems Involving Structures, Report No. LMSC/F-213651, Lockheed Missiles and Space Co., Inc., Palo Alto, CA (1986).

T.L. Geers, P. Zhang and B.A. Lewis, "Advanced DAA Methods for Shock Response Analysis," Defense Nuclear Agency technical report DNA-TR-91-69, July 1992.

Zhang, Peizhen and Thomas L.Geers, "Excitation of a fluid-filled, submerged spherical shell by a transient acoustic wave", J. Acoust. Soc. Amer. 93: 696–705, 1993

T.L. Geers and T.-H. Ju, "A Computer Program for a Canonical Problem in Underwater Shock," Shock and Vibration 1,4 (1994), 331-337.

T.L. Geers and Peizhen Zhang, "Doubly asymptotic approximations for submerged structures with internal fluid volumes: Formulation", Journal of Applied Mechanics, Vol. 61, No. 4, pp 893-899, December 1994

Geers T L, Zhang P. Doubly asymptotic approximations for submerged structures with internal fluid volumes: Evaluation. Journal of Applied Mechanics, 1994, 61: 900–906.

Shin YS, Geers TL, Response of marine structures to underwater explosions. International short course notebook, Shock and Vibration Research, Monterey, CA, 1994.

Sprague MA, Geers TL. Response of empty and fluid-filled, submerged spherical shells to plane and spherical, step-exponential acoustic waves. Shock and Vibration, 1999, 6: 147-157

Sprague MA, Geers TL (2001) Computational treatments of cavitation effects in near-free-surface underwater shock analysis. Shock Vib 7:105–122

Geers, T. L., Hunter, L. S., "An Integrated Wave-Effects Model for an Underwater Explosion Bubble," Journal of Acoustical Society of America, Vol. 111, No. 4, April 2002, pp 1584-1601.

Sprague MA, Geers TL (2003) Spectral elements and field separation for an acoustic fluid subject to cavitation. J Comput Phys 184:149–162

Sprague M A, Geers T L., "A spectral-element method for modeling cavitation in transient fluid-structure interaction", International Journal for Numerical Methods in Engineering, 2004, 60: 2467–2499.

Hunter KS, Geers TL (2004) Pressure and velocity fields produced by an underwater explosion. J Acoust Soc Am 115(4): 1483–1496

Geers TL, Park KC (2005) Optimization of the G&H bubble model. Shock Vib 12(1): 3–8