



Dr. John A. DeRuntz, Jr.

See:

<http://theunknowncomposer.com/>

http://www.oregonlive.com/performance/index.ssf/2011/04/john_deruntz_scientist_compose.html

Retired, formerly with Lockheed Advanced Development Center
Palo Alto, California

From an article dated April 23, 2011 in The Oregonian (OREGONLIVE) by David Stabler:

How many résumés combine secret codes, submarines, fluid dynamics and Chopin?

John A. DeRuntz, 73, is a retired mathematician and scientist, known internationally in the field of shock waves. His computer code for analyzing underwater shock waves is so valuable the Navy uses it to design the Seawolf class of submarines.

And, by the way, he's also a pianist, one of three Oregonians who recently learned they've been invited to compete at the Van Cliburn Foundation's sixth International Piano Competition for Outstanding Amateurs, an auditioned field of serious, but not professional, pianists held every four years in Fort Worth, Texas. The other two Oregon pianists are Darlene Cusick, a retired piano teacher from Portland, and Judy Darst, a retired piano teacher from Bend. They will compete May 23-29 [2011].

"I'm kind of not worthy," says DeRuntz, whose six-page résumé refers to missiles and Mozart. "The news blew me away." He's one of three Oregon pianists competing against 74 pianists from around the world in Fort Worth, Texas in late May.

For 26 years, the Tigard [Oregon] resident worked at Lockheed Palo Alto Research Laboratory in Palo Alto, Calif., where he researched wave dynamics, underwater shock waves and the interaction of waves and ships. Earlier in his career, he worked on thermal insulation for the space shuttle. He may be the only pianist at the competition to have had a secret security clearance, now lapsed.

Shock and vibration really get him going, as does music. He's even given a music lecture at the annual Shock and Vibration Symposium called "Music, the Art of Good Vibrations."

Born in Chicago, DeRuntz has played piano all his life. He says he's mostly self-taught. Unlike most of the other 76 contestants, he will play his own music at the Cliburn competition. He's written well over 100 pieces, he says, and can be seen on several YouTube videos playing his gentle, melancholy compositions. He plays almost every day and has recorded two albums of his music, in a lyrical style suggestive of Chopin.

"I'm a hopeless romantic," he acknowledges.

Education:

1959 B.S. in Mechanical Engineering from Illinois Institute of Technology

1962 M.S. in Mechanical Engineering from Illinois Institute of Technology

1965 Ph.D. in Mechanical Engineering from Illinois Institute of Technology

2007 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 **Dr. John A. DeRuntz, Jr.**, for his pioneering work in numerical simulation methods and tools that analyze the response of submarines and surface ships to underwater explosions. As developer of the Underwater Shock Analysis (USA) and Cavitating Fluid Analyzer (CFA) codes, he is as 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. The award was presented to Dr. DeRuntz by Professor Thomas L. Geers, the 2001 award recipient.

Selected Publications:

Non-Technical Book:

John DeRuntz, *Tantum Ergo Makes Your Hair Grow (and other things I learned after class)*

Technical Papers:

Deruntz JA, Hodge PG. Crushing of a tube between rigid plates. *J Appl Mech* 1963; 30: pp 391–398.

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.

Park, K.C., Felippa, C.A., and DeRuntz, J.A. — Stabilization of Staggered Solution Procedures for Fluid-Structure Interaction Analysis, *Computational Methods for Fluid-Structure Interaction Problems*, American Society of Mechanical Engineers, AMD-Vol. 26, 1977, pp. 95–124.

J.A. DeRuntz and F.A. Brogan, "Underwater Shock Analysis of Non-Linear Structures, A Reference Manual for the USA-STAGS Code," Lockheed Palo Alto Research Laboratory Report No. LMSC-D633864, 1979.

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).

Felippa, C.A., and DeRuntz, J.A. — Finite Element Analysis of Shock-Induced Hull Cavitation, *Computer Methods in Appl. Mech. and Engrg*, 11, No.3, pp 297–337 (1981).

C.A. Felippa and J.A. DeRuntz (Applied Mechanics Laboratory, Lockheed Palo Alto Research Laboratory, Palo Alto, CA 94304, U.S.A.), “Finite element analysis of shock-induced hull cavitation”, *Computer Methods in Applied Mechanics and Engineering*, Vol. 44, No. 3, pp 297-337, August 1984

J.A. DeRuntz, “The Underwater Shock Analysis Code and Its Applications,” *Proceedings of the 60th Shock and Vibration Symposium I* (1989), pp 89-107.

John A. DeRuntz and Charles C. Rankin, “Applications of the USA-STAGS-CFA Code to Nonlinear Fluid-Structure Interaction Problems in Underwater Shock of Submerged Structures,” *Proceedings of the 60th Shock and Vibration Symposium*, Vol. 1, Virginia Beach, VA, Nov. 1989, pp 121-138.

J.A. DeRuntz, "Shock Analysis of Submerged Structures with Internal Fluid Volumes," *Sloshing, Fluid-Structure Interaction and Structural Response due to Shock and Impact Loads 1994*, ASME PVP-Vol. 272 (1994), 141-152.

DeRuntz, Jr., J.A., *The Underwater Shock Analysis (USA) Manual, Unique Software Applications*, Colorado Springs, CO, May 1996.

DeRuntz, Jr., J.A. and Shin, Y.S., “USA/LS-DYNA3D Software Training Course”, *Naval Postgraduate School*, Monterey, CA, June 1996.

DeRuntz, Jr, J.A. “Application of the USA Code to Underwater Shock Problems”, *72nd Shock and Vibration Symposium*, November, 2001.