

Professor Young S. Shin

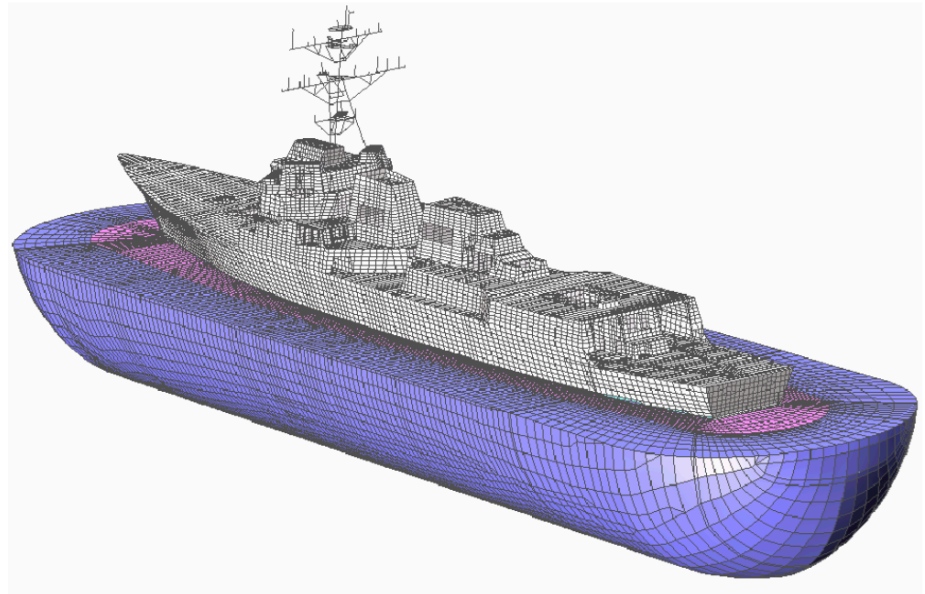


Figure 20. Second Generation Coupled Ship and Fluid Model

From: Young S. Shin and Nathan A. Schneider, “Ship Shock Trial Simulation of USS Winston S. Churchill (DDG 81): Modeling and Simulation Strategy and Surrounding Fluid Volume Effects”, Publisher and date not given in the pdf file. The most recent citation is dated 2004.)

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Distinguished Professor Emeritus
Department of Mechanical and Aerospace Engineering
Graduate School of Engineering and Applied Sciences
Naval Postgraduate School (NPS), Monterey, California

Education:

PhD - Case Western Reserve University, 1971

MS - University of Minnesota, 1966

BS - Seoul Nat'l Univ, 1965

Career:

1981 – present Professor of Mechanical Engineering, Naval Postgraduate School

1979 - 1981 General Electric Company, Nuclear Power Systems Engineering, San Jose, California: Performed research on fluid-structure interaction effect in Boiling Water Reactor (BWR) for loss of coolant accident (LOCA) situation. New transient loading in LOCA was identified and I was in charge of the research project to assess if this additional dynamic loading is within design boundary.

1974 - 1979 Argonne National Laboratories, Components Technology Division, Argonne, Illinois: Performed research on flow-induced vibrations in Fast Breeder Reactor and also steam generator. The design configuration is the bundle of parallel tubes. Both parallel and cross flow-induced vibration problems in tube bundle have to be resolved. The work involved in analysis, design and testing.

1972 - 1974 Bechtel Corporation, San Francisco, California: Involved in nuclear power plant design and analysis. Conducted the finite element modeling of plant and performed dynamic analysis.

Teaching Interests:

Naval Ship Shock Analysis, Design and Testing
Random Vibration and Spectral Analysis
Mechanical Engineering Design

Research Interests:

Fundamental and applied research in Shock and Vibration: underwater shock response analysis and testing, shock modeling and simulation, shock and vibration isolation and suppression, shipboard machinery condition monitoring and diagnostics, modal testing and acoustic damping measurement, acoustic-structure interaction, fatigue reliability, joint damping characteristics, and passive vibration control by constrained viscoelastic layers and wave guide absorber

Awards:

Fellow in American Society of Mechanical Engineers since January 1992
NPS Outstanding Research Achievement Recognition
ASME PVP Service Award for Chairman of Fluid-Structure Interaction Technical Committee
Director's Award on Developing a Special Session on Ship Shock Modeling and Simulation at the 74th Shock & Vibration Symposium (2003)
Member of Editorial Board of Journal of Shock and Vibration (1993-2005)
Member of Professional Engineers' Society in Ohio (since 1970) and California (since 1972)

Selected Publications:

Jones, R. A., Shin, Y. S.: Experimental investigation of the response and failure mechanisms of circular metal and composite plates to underwater explosion. In: 61st Shock and Vibration Symposium, Pasadena, Ca. 1990. pp. 163-178.

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

J.E. Chisum and Y.S. Shin, "Multimaterial Eulerian and Coupled Lagrangian-Eulerian Finite Element Analysis of Underwater Shock Problems," Naval Postgraduate School report NPS-ME-95-001, 1995.

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

Y.S. Shin and D.T. Hooker (Department of Mechanical Engineering, Naval Postgraduate School, Monterey, CA 93943, U.S.A.), "Damage response of submerged imperfect cylindrical structures to underwater explosion", Computers & Structures, Vol. 60, No. 5, pp 683-693, July 1996

Shin YS (1996). Naval ship-shock design and analysis. Course Notes for Underwater Shock Analysis, Naval Postgraduate School, Monterey, California.

Y.S. Shin, J.E. Chisum, "Modeling and Simulation of Underwater Shock Problems Using a Coupled Lagrangian-Eulerian Analysis Approach," Shock and Vibration 1/4 (1997), 1-10.

Wood, S. L. and Shin, "Cavitation Effects to Ship-like-Box Structure for Underwater Explosion," Presented at 69th Shock and Vibration Symposium, Oct. 12-16, 1998, Minneapolis/St. Paul, MN.

Y.S. Shin and L.D. Santiago, "Surface ship shock modeling and simulation: two-dimensional analysis," *Shock and Vibration* 5/2 (1998), 129-137.

Shin, Y.S. and Park, S.Y., "Ship Shock Trial Simulation of USS John Paul Jones (DDG 53) Using LSDYNA/USA: Three Dimensional Analysis", 70th Shock and Vibration Symposium Proceedings, Vol. I, November 1999.

Malone, P. E. and Shin, Y. S., "Sensitivity Analysis of Coupled Fluid Volume to Ship Shock Simulation," Proceedings of 71st Shock And Vibration Symposium, Crystal City VA, 6-9 Nov., 2000

Shin, Y.S. and Ham, I.B. "Damping Modeling Strategy for Naval Ship System", Report NPS-ME-03-003, Naval Postgraduate School, September, 2003; Also Proceedings of Shock and Vibration Symposium, San Diego CA, 27-31 October, 2003.

Shin YS., "Ship shock modeling and simulation for far-field underwater explosion", *Computers and Structures*, 2004, 82: 2211-2219

Young S. Shin and Nathan A. Schneider, "Ship Shock Trial Simulation of USS Winston S. Churchill (DDG 81): Modeling and Simulation Strategy and Surrounding Fluid Volume Effects", Publisher and date not given in the pdf file. The most recent citation is dated 2004.)

Kim J.-H., Shin H.-C.: Application of the ALE technique for underwater explosion analysis of a submarine liquefied oxygen tank, *Ocean Engineering*, Vol. 35, No. 8-9, 2008, pp. 812-822.

Chul-Hong Kim and Young S. Shin, "Numerical simulation of surface shield effects to waterblast wave", *Ocean Engineering*, Vol. 60, pp 99-114, March 2013