International Journal of Computational Fluid Dynamics, August 2003 Vol. 17 (4), pp. 231–233

Taylor & Francis
Taylor & Francis Group

Editorial

I.M. NAVON*

Department of Mathematics and School of Computational Science and Information Technology, Science Library Building, Room 470, Florida State University, Tallahassee, FL 32306-4052, USA

Professor Mutsuto Kawahara, who has recently turned 60 years young is currently Chairman of the Department of Civil Engineering at Chuo University. He has played an active part in many fields of research during the last few decades. His distinguished achievements with the Finite Element Method (FEM) have contributed to progress in computational fluid dynamics and computational structural mechanics, to mention but two fields of endeavor.

He is a pioneer and world-class leader in the field of computational methods, especially FEM.

It was only a few decades ago that people believed that only experiments using models could provide useful engineering information. Professor Kawahara and his troops managed through new models and algorithmic developments to capitalize on state-of-the-art computers and lay important foundations for computational civil engineering. Their pioneering work popularized the importance of FEM as a tool of choice for such computations.

Professor Kawahara never gets tired of reminding his students that "what we do is not analysis, but synthesis". Thus, in his specialization field, Professor Kawahara's laboratory has carried out research not only in "analysis" mode but also in "synthesis" mode to control phenomena and identify major parameters. To Professor Kawahara, *simulation stops at nothing*.

This special issue of IJCFD that I have the honor to edit is just a minor token of appreciation to Professor Mutsuto Kawahara from his numerous colleagues all over the globe. It attests to the variety of research fields where his talent, enthusiasm and powers of stimulation have opened new avenues of productive collaboration and research in a truly international fashion.

INTERNATIONAL CONFERENCES ORGANIZED BY PROFESSOR KAWAHARA

4th International Symposium on Finite Element Methods in Flow Problems, Chuo University, Tokyo, 1982.

International Conference on Numerical Methods in Fluid Flow, Okayama Science University, Okayama, 1988.

Japan US Symposium on Finite Element Methods in Computational Fluid Dynamics, Chuo University, Tokyo, 1992.

12th International Conference on Finite Element Methods in Flow Problems, Meijo University, Nagoya, 2003.

PARTIAL LIST OF PROFESSOR KAWAHARA'S JOURNAL PUBLICATIONS

Kurahashi, T. and Kawahara, M. (Jan 30 2003) "Water quality control by bank placement based on optimal control and finite element method", *Int J Numer Meth Fl* **41**(3), 319–338.

Kawahara, M. (May 2002) "Untitled", *Int J Comput Fluid D* **16**(2), U2–U2.

Matsumoto, J., Khan, A.A., Wang, S.S.Y., *et al.* (May 2002) "Shallow water flow analysis with moving boundary technique using least-squares bubble function", *Int J Comput Fluid D* **16**(2), 129–134.

Kawahara, M. (2001) "Fifth US Japan Symposium on Flow Simulation and Modeling held at Rice University on March 29–31, 2000—Editorial", *Int J Comput Fluid D* **15**(1), I–I.

Kato, S. and Kawahara, M. (2001) "The finite element analysis of interaction problem through water, soil, balloon and pile", *Int J Comput Fluid D* **15**(1), 73–79.

Matsumoto, J. and Kawahara, M. (2001) "Shape identification for fluid-structure interaction problem using improved bubble element", *Int J Comput Fluid D* **15**(1), 33–45.

Kato, S., Suda, S., Imazu, K., *et al.* (Jul 2001) "A control analysis of interaction problem by fluid force", *Commun Numer Meth En* **17**(7), 465–476.

Okumura, H. and Kawahara, M. (2000) "Shape optimization of body located in incompressible Navier–Stokes flow based on optimal control theory", *CMES-Comp Model Eng* **1**(2), 71–77.

*Tel: +1-850-644-6560. Fax: +1-850-644-0098. E-mail: navon@csit.fsu.edu

ISSN 1061-8562 print/ISSN 1029-0257 online © 2003 Taylor & Francis Ltd
DOI: 10.1080/1061856031000120637

Ding, Y. and Kawahara, M. (2000) "Secondary instabilities of wakes of a circular cylinder using a finite element method", *Int J Comput Fluid D* **13**(3), 279 + .

Edamoto, K. and Kawahara, M. (1999) "Finite element analysis of two- and three-dimensional flows around box-type bridge sections", *Int J Comput Fluid D* **13**(1), 101–108.

Edamoto, K. and Kawahara, M. (1999) "Finite element analysis of two- and three-dimensional flows around box-type bridge sections", *Int J Comput Fluid D* **13**(1), 101–108.

Kawahara, M. (1999) "Special issue—US Japan Symposium on Finite Element Methods in Large-Scale Computational Fluid Dynamics—Narashino Campus of Nihon University—April 2–4, 1998", *Int J Comput Fluid D* **12**(3–4), I.

Miyata, K., Kaneko, N., Kitano, Y., *et al.* (1999) "An analysis of optimum pumping flow rates using multilayer seepage model", *Int J Comput Fluid D* **12**(2), 177–194.

Suma, K. and Kawahara, M. (Sep 15 1999) "Estimation of boundary conditions for ground temperature control using Kalman filter and finite element method", *Int J Numer Meth Fl* **31**(1), 261–274.

Ding, Y. and Kawahara, M. (Sep 30 1999) "Three-dimensional linear stability analysis of incompressible viscous flows using the finite element method", *Int J Numer Meth Fl* **31**(2), 451–479.

Usugi, T., Akkus, N., Kawahara, M., *et al.* (1999) "An analytical model of the superplastic bulge forming of sheet metal", *Mater Sci Forum* **304-3**, 735–740.

Yamamoto, K. and Kawahara, M. (May 1999) "Structural oscillation control using tuned liquid damper", *Comput Struct* **71**(4), 435–446.

Kato, S., Takagi, T. and Kawahara, M. (Sep 30 1998) "A finite element analysis of Mach reflection by using the Boussinesq equation", *Int J Numer Meth Fl* **28**(4), 617–631.

Edamoto, K. and Kawahara, M. (Jul 15 1998) "Finite element analysis of two- and three-dimensional flows around square columns in tandem arrangement", *Int J Numer Meth Fl* **28**(1), 95–112.

Kawahara, M. (1998) "Third Japan–US Symposium on Finite Element Methods in Large-Scale Computational Fluid Dynamics—1–3 April 1996, Minnesota, USA", *Int J Comput Fluid D* **9**(3–4), I–I, Sp. Iss. SI.

Maruoka, A., Marin, M. and Kawahara, M. (1998) "Optimal control in Navier–Stokes equations", *Int J Comput Fluid D* **9**(3–4), 313–322, Sp. Iss. SI.

Ding, Y. and Kawahara, M. (Apr 14 1998) "Analysis of dynamic response of prey–predator system with nonlinear diffusion-reaction equations by using superposition", *Comput Method Appl M* **156**(1–4), 375–388.

Ding, Y. and Kawahara, M. (Jan 20 1998) "Linear stability of incompressible flow using a mixed finite element method", *J Comput Phys* **139**(2), 243–273.

Ding, Y. and Kawahara, M. (Jan 1998) "Linear stability of incompressible fluid flow in a cavity using finite element method", *Int J Numer Meth Fl* **27**, 139–157, Sp. Iss. SI.

Marin, M. and Kawahara, M. (Jan 1998) "Optimal control of vorticity in Rayleigh–Bernard convection by finite element method", *Commun Numer Meth En* **14**(1), 9–22.

Takagi, T., Inamoto, K. and Kawahara, M. (1997) "Estimation of wave propagation using a Kalman filter", *Int J Comput Fluid D* **9**(1), 77–84.

Akkus, N., Manabe, K., Kawahara, M., *et al.* (Aug 15 1997) "A finite–element model for the superplastic bulging deformation of Ti-alloy pipe", *J Mater Process Tech* **68**(3), 215–220.

Suzuki, S. and Kawahara, M. (Jun 1997) "Predictive bang–bang control for management of ground temperature based on finite element method", *Int J Adapt Control* **11**(4), 299–310.

Okamoto, T. and Kawahara, M. (1997) "3-D sloshing analysis by an arbitrary Lagrangian–Eulerian finite element method", *Int J Comput Fluid D* **8**(2), 129–146.

Anju, A. and Kawahara, M. (Mar 30 1997) "Comparison of sensitivity equation and adjoint equation methods for parameter identification problems", *Int J Numer Meth Eng* **40**(6), 1015–1024.

Akkus, N., Manabe, K., Kawahara, M., *et al.* (1997) "A finite element modelling for superplastic bulging of titanium alloy tube and pressure path optimization", *Mater Sci Forum* **243-**, 729–734.

Kawahara, M. and Ding, Y. (Mar 1 1997) "Bifurcation analysis of brown tide by reaction-diffusion equation using finite element method", *J Comput Phys* **131**(2), 253–266.

Anju, A., Maruoka, A. and Kawahara, M. (1997) "2-D fluid-structure interaction problems by an arbitrary Lagrangian–Eulerian finite element method", *Int J Comput Fluid D* **8**(1), 1–9.

Kawahara, M. and Sasaki, K. (1996) "Adaptive and optimal control of the water gate of a dam using a finite element method", *Int J Comput Fluid D* **7**(3), 253–273.

Kawahara, M. (1996) "Second Japan–US Symposium on finite element methods in large-scale computational fluid dynamics—14–16 March 1994, Tokyo, Japan—Special issue", *Int J Comput Fluid D* **7**(1–2), 1.

Hirano, H., Kawahara, M. and Yoshida, K. (1996) "An optimal control analysis of water pollution problem", *Int J Comput Fluid D* **7**(1–2), 119–129.

Kojima, K., Kodama, T. and Kaneko, N. (1996) "Parameter identification and control of ground temperature", *Int J Comput Fluid D* **7**(1–2), 193–200.

Suzuki, S., Anju, A. and Kawahara, M. (Mar 15 1996) "Management of ground temperature by bang–bang control based on finite element application", *Int J Numer Meth Eng* **39**(5), 885–901.

Kodama, T., Wang, S.S.Y. and Kawahara, M. (Jan 15 1996) "Model verification on 3D tidal current analysis in Tokyo Bay", *Int J Numer Meth Fl* **22**(1), 43–66.

Tezduyar, T.E., Kawahara, M. and Hughes, T.J.R. (Nov 30 1995) "Finite-element methods in large-scale computational fluid-dynamics—preface", *Int J Numer Meth Fl* **21**(10), R3–R3.

Hatanaka, K. and Kawahara, M. (Nov 30 1995) "A numerical study of vortex shedding around a heated/cooled circular-cylinder by the 3-step Taylor–Galerkin method", *Int J Numer Meth Fl* **21**(10), 857–867.

Kawahara, M., Sasaki, K.I. and Sano, Y. (Apr 30 1995) "Parameter-identification and optimal-control of ground temperature", *Int J Numer Meth Fl* **20**(8–9), 789–801.

Kawahara, M. and Ding, Y. (Jan 15 1998) "Bifurcation analysis of brown tide in tidal flow using finite element method", *Comput Method Appl M* **151**(1–2), 195–213.

Kawahara, M. and Shimada, Y. (Sep 30 1994) "Gradient-method of optimal-control applied to the operation of a dam water gate", *Int J Numer Meth Fl* **19**(6), 463–477.

Tandon, P.N., Kawahara, M. and Rana, U.V.S. (May 1994) "A mathematical-model for blood-flow through an arterial bifurcation", *Int J Biomed Comput* **35**(4), 309–325.

Tezduyar, T.E., Kawahara, M. and Hughes, T.J.R. (Feb 1994) "Finite-element methods in large-scale computational fluid-dynamics—First US–Japan symposium on finite-element methods in large-scale computational fluid-dynamics—University of Minnesota—Supercomputer Institute, Minnesota, USA, 11–14 October", *Comput Method Appl M* **112**(1–4), 1.

Kawahara, M. and Shimada, Y. (Feb 1994) "A predictive control method to operate the water gate of a dam", *Comput Method Appl M* **112**(1–4), 199–218.

Jiang, C.B. and Kawahara, M. (May 15 1993) "The analysis of unsteady incompressible flows by a 3-step finite-element method", *Int J Numer Meth Fl* **16**(9), 793–811.

Tandon, P.N., Rana, U.V.S., Kawahara, M., *et al.* (Jan 1993) "A model for blood-flow through a stenotic tube", *Int J Biomed Comput* **32**(1), 61–78.

Okamoto, T., Kawahara, M., Ioki, N., *et al.* (May 30 1992) "Two-dimensional wave run-up analysis by selective lumping finite-element method", *Int J Numer Meth Fl* **14**(10), 1219–1243.

Jiang, C.B., Kawahara, M. and Kashiyama, K. (Feb 1992) "A Taylor–Galerkin-based finite-element method for turbulent flows", *Fluid Dyn Res* **9**(4), 165–178.

Kodama, T., Kawasaki, T. and Kawahara, M. (Nov 5 1991) "Finite-element method for shallow-water equation including open boundary-condition", *Int J Numer Meth Fl* **13**(8), 939–953.

Hayashi, M., Hatanaka, K. and Kawahara, M. (Oct 1991) "Lagrangian finite-element method for free-surface Navier–Stokes flow using fractional step methods", *Int J Numer Meth Fl* **13**(7), 805–840.

Kovacs, A. and Kawahara, M. (Aug 1991) "A finite-element scheme based on the velocity correction method for the solution of the time-dependent incompressible Navier–Stokes equations", *Int J Numer Meth Fl* **13**(4), 403–423.

Okamoto, N. and Kawahara, M. (Aug 1991) "Numerical-analysis of convection diffusion with chemical-reaction by combined finite and boundary element methods", *Int J Numer Meth Fl* **13**(4), 465–479.

Okamoto, T. and Kawahara, M. (Oct 5 1990) "Two-dimensional sloshing analysis by Lagrangian finite-element method", *Int J Numer Meth Fl* **11**(5), 453–477.

Ponnalagarsamy, R. and Kawahara, M. (Dec 1989) "A finite-element analysis of laminar unsteady-flow of viscoelastic fluids through

channels with non-uniform cross-sections", *Int J Numer Meth Fl* **9**(12), 1487–1501.
Kawahara, M., Kodama, T. and Kinoshita, M. (1988) "Finite-element method for tsunami wave-propagation analysis considering the open boundary-condition", *Comput Math Appl* **16**(1–2), 139–152.
Kawahara, M., Sakurai, H. and Kashiyama, K. (May 1988) "Boundary-type finite-element method for wave-propagation analysis", *Int J Numer Meth Fl* **8**(5), 559–578.
Ramaswamy, B. and Kawahara, M. (Jan 1988) "An efficient finite-element scheme for incompressible viscous-fluid flow", *Indian J Technol* **26**(1), 1–13.
Kashiyama, K. and Kawahara, M. (Jan 1988) "A boundary-type finite-element model for water-surface wave problems", *Int J Numer Meth Fl* **8**(1), 65–79.
Ramaswamy, B. and Kawahara, M. (Oct 1987) "Arbitrary Lagrangian Eulerian finite-element method for unsteady, convective, incompressible viscous free-surface fluid-flow", *Int J Numer Meth Fl* **7**(10), 1053–1075.
Ramaswamy, B. and Kawahara, M. (Sep 1987) "Lagrangian finite-element analysis applied to viscous free-surface fluid-flow", *Int J Numer Meth Fl* **7**(9), 953–984.
Ramaswamy, B., Kawahara, M. and Nakayama, T. (Sep 1986) "Lagrangian finite-element method for the analysis of two-dimensional sloshing problems", *Int J Numer Meth Fl* **6**(9), 659–670.
Kawahara, M. and Umetsu, T. (Jun 1986) "Finite-element method for moving boundary-problems in river flow", *Int J Numer Meth Fl* **6**(6), 365–386.
Kawahara, M. and Ohmiya, K. (1985) "Finite-element analysis of density flow using the velocity correction method", *Int J Numer Meth Fl* **5**(11), 981–993.
Kawahara, M. and Kashiyama, K. (1985) "Boundary type finite-element method for surface-wave motion based on trigonometric function interpolation", *Int J Numer Meth Eng* **21**(10), 1833–1852.
Kasahara, K., Hara, H. and Kawahara, M. (1984) "Two-step explicit finite-element method for 2-layer flow-analysis", *Int J Numer Meth Fl* **4**(10), 931–947.
Kawahara, M. and Miwa, T. (1984) "Finite-element analysis of wave motion", *Int J Numer Meth Eng* **20**(7), 1193–1210.
Kawahara, M. and Kashiyama, K. (1984) "Selective lumping finite-element method for nearshore current", *Int J Numer Meth Fl* **4**(1), 71–97.
Kawahara, M., Kobayashi, M. and Nakata, K. (1983) "Multiple level finite-element analysis and its applications to tidal current flow in Tokyo bay", *Appl Math Model* **7**(3), 197–211.
Kawahara, M. and Hirano, H. (1983) "A finite-element method for high reynolds-number viscous-fluid flow using 2-step explicit scheme", *Int J Numer Meth Fl* **3**(2), 137–163.
Kawahara, M., Hirano, H., Tsubota, K., *et al.* (1982) "Selective lumping finite-element method for shallow-water flow", *Int J Numer Meth Fl* **2**(1), 89–112.
Kawahara, M., Morihira, M., Kataoka, S., *et al.* (1981) "Periodic finite-elements in 2-layer tidal flow", *Int J Numer Meth Fl* **1**(1), 45–61.
Kawahara, M. and Yokoyama, T. (1981) "Finite-element method for direct runoff flow-closure", *J Hydr Eng Div-Asce* **107**(11), 1568.
Kawahara, M., Nakazawa, S., Ohmori, S., *et al.* (1980) "2-Step explicit finite-element method for storm-surge propagation analysis", *Int J Numer Meth Eng* **15**(8), 1129–1148.
Kawahara, M. and Yokoyama, T. (1980) "Finite-element method for direct runoff flow", *J Hydr Eng Div-ASCE* **106**(4), 509–534.
Kawahara, M., Takeuchi, N. and Yoshida, T. (1978) "Two-step explicit finite-element method for Tsunami wave-propagation analysis", *Int J Numer Meth Eng* **12**(2), 331–351.
Kawahara, M. and Hasegawa, K. (1978) "Periodic galerkin finite-element method of tidal flow", *Int J Numer Meth Eng* **12**(1), 115–127.
Kawahara, M., Hasegawa, K. and Kawanago, Y. (1977) "Periodic tidal flow analysis by finite-element perturbation method", *Comput Fluids* **5**(4), 175–189.
Kawahara, M. (1977) "Periodic galerkin finite-element method of unsteady periodic flow of viscous-fluid", *Int J Numer Meth Eng* **11**(7), 1093–1105.
Kawahara, M., Yoshimura, N., Nakagawa, K., *et al.* (1976) "Steady and unsteady finite-element analysis of incompressible viscous-fluid", *Int J Numer Meth Eng* **10**(2), 437–456.
Kawahara, M. (1975) "Large strain, viscoelastic and elasto-viscoplastic numerical-analysis by means of finite-element method", *Nucl Eng Des* **34**(2), 233–246.
Kawahara, M. (1975) "Large strain, viscoelastic and elasto viscoplastic numerical-analysis by means of finite-element method", *Arch Mech* **27**(3), 417–443.

Professor Kawahara

Date of Birth: August 31, 1942
Born and raised in Tokyo
Career

- 1966: Graduated from Department of Civil Engineering of Waseda University
- 1971: Finished a Doctoral Program at the Graduate School of Waseda University
- 1972: Lecturer at Chuo University
- 1973: Doctor of Engineering
- 1974: Assistant Professor at Chuo University
- 1983: Professor at Chuo University