



Professor Kenji Takizawa

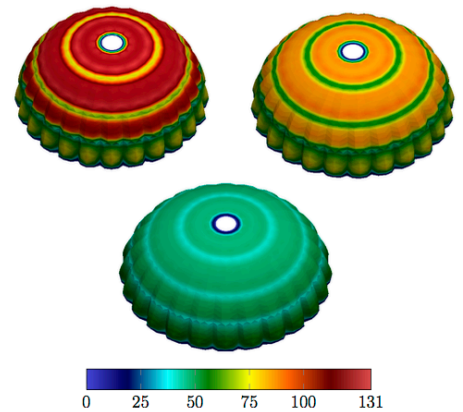
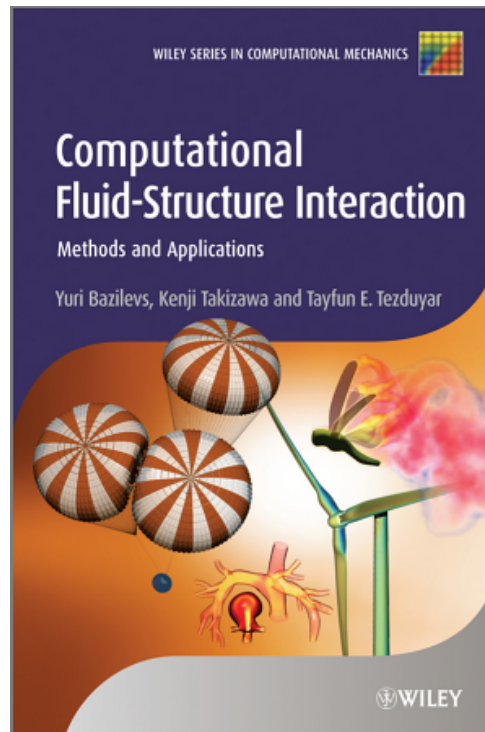


Fig. 4: Pressure difference (lb/ft²) on the fluid interface of the drogue parachute for FC 3.1–3.3.

The right-most image is from: K. Takizawa, T.E. Tezduyar, R. Kolesar, C. Boswell, T. Kanai and K. Montel, “Multiscale methods for gore curvature calculations from FSI (Fluid-Structure Interaction) modeling of spacecraft parachutes”, Computational Mechanics, Vol. 54, pp 1461-1476, 2014

See:

<https://scholar.google.com/citations?user=yP6hAUIAAAAJ&hl=en>

<https://waseda.pure.elsevier.com/en/persons/kenji-takizawa>

https://www.researchgate.net/profile/Kenji_Takizawa2

<https://mech.rice.edu/news/kenji-takizawa-receives-japans-jsps-prize>

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Introduction:

A professor of MECH at Waseda University in Tokyo, Takizawa works at Rice with the research group of Tayfun Tezduyar, the James F. Barbour Professor of MECH and co-leader (with Takizawa) of the Team for Advanced Flow Simulation and Modeling.

Takizawa earned his Ph.D. from the Tokyo Institute of Technology in 2005, joined Rice in 2007 as a research associate, later became a research scientist, and assumed his Waseda faculty position in 2011. His research focuses on computational fluid mechanics and fluid-structure interaction.

Takizawa has developed methods for the computational analysis of fluid-structure interactions, fluid-object and fluid-particle interactions, free-surface flows and two-fluid interfaces. Among the applications for his research

are spacecraft parachutes, cardiovascular flow analysis, wing aerodynamics with the wing motion extracted from video recordings of locusts in a wind tunnel, and flow analysis around a tire with road contact.

Selected Publications:

Book:

Yuri Bazilevs, Kenji Takizawa and Tayfun E. Tezduyar, *Computational Fluid-Structure Interaction: Methods and Applications*, John Wiley & Sons, 2013

Journal articles, etc.:

Tezduyar TE, Takizawa K, Moorman C, Wright S, Christopher J (2010) Multiscale sequentially-coupled arterial FSI technique. *Comput Mech* 46:17–29.

Takizawa K, Moorman C, Wright S, Christopher J, Tezduyar TE (2010) Wall shear stress calculations in space–time finite element computation of arterial fluid–structure interactions. *Comput Mech* 46:31–41.

Takizawa K, Christopher J, Tezduyar TE, Sathe S (2010) Space–time finite element computation of arterial fluid–structure interactions with patient-specific data. *Int J Numer Methods Biomed Eng* 26:101–116.

Tezduyar TE, Takizawa K, Moorman C, Wright S, Christopher J (2010) Space–time finite element computation of complex fluid–structure interactions. *Int J Numer Methods Fluids* 64:1201–1218.

Y. Bazilevs, M.-C.Hsu, I.Akkerman, S.Wright, K.Takizawa, B.Henicke, T.Spielman, and T.E.Tezduyar. 3D simulation of wind turbine rotors at full scale. Part I: Geometry modeling and aerodynamics. *International Journal for Numerical Methods in Engineering*, 65(1-3):207–235, 2011.

Takizawa K, Tezduyar TE (2011) Multiscale spacetime fluid structure interaction techniques. *Comput Mech* 48(3):247–267.

Takizawa K, Moorman C, Wright S, Spielman T, Tezduyar TE (2011) Fluid–structure interaction modeling and performance analysis of the Orion spacecraft parachutes. *Int J Numer Methods Fluids* 65:271–285.

Takizawa K, Wright S, Moorman C, Tezduyar TE (2011) Fluid–structure interaction modeling of parachute clusters. *Int J Numer Methods Fluids* 65:286–307.

Takizawa K, Moorman C, Wright S, Purdue J, McPhail T, Chen PR, Warren J, Tezduyar TE (2011) Patient-specific arterial fluid–structure interaction modeling of cerebral aneurysms. *Int J Numer Methods Fluids* 65:308–323

Tezduyar TE, Takizawa K, Brummer T, Chen PR (2011) Space–time fluid–structure interaction modeling of patient-specific cerebral aneurysms. *Int J Numer Methods Biomed Eng* 27:1665–1710.

Takizawa K, Brummer T, Tezduyar TE, Chen PR (2012) A comparative study based on patient-specific fluid–structure interaction modeling of cerebral aneurysms. *J Appl Mech* 79:010908

Takizawa K, Tezduyar TE (2012) Space-time fluid-structure interaction methods. *Math Models Methods Appl Sci* 22(supp02):1230001.

Bazilevs Y, Hsu M-C, Takizawa K, Tezduyar TE (2012) ALE-VMS and ST-VMS methods for computer modeling of wind-turbine rotor aerodynamics and fluid-structure interaction. *Math Models Methods Appl Sci* 22(supp02):1230002.

Takizawa K, Henicke B, Puntel A, Spielman T, Tezduyar TE (2012) Space–time computational techniques for the aerodynamics of flapping wings. *J Appl Mech* 79:010903.

Bazilevs Y, Takizawa K, Tezduyar TE (2013) Challenges and directions in computational fluid-structure interaction. *Math Models Methods Appl Sci* 23(02):215–221.

Takizawa K, Tezduyar TE, Kostov N (2014) Sequentially-coupled space-time FSI analysis of bio-inspired flapping-wing aerodynamics of an MAV. *Comput Mech* 54:213–233.

Bazilevs Y, Takizawa K, Tezduyar TE, Hsu M-C, Kostov N, McIntyre S (2014) Aerodynamic and FSI analysis of wind turbines with the ALE-VMS and ST-VMS methods. *Arch Comput Methods Eng* 21(4):359–398.

Takizawa K, Bazilevs Y, Tezduyar TE, Hsu M-C, Øiseth O, Mathisen KM, Kostov N, McIntyre S (2014) Engineering analysis and design with ALE-VMS and space-time methods. *Arch Comput Methods Eng* 21(4):481–508

Takizawa K, Tezduyar TE, Buscher A, Asada S (2014) Spacetime interface-tracking with topology change (ST-TC). *Comput Mech* 54(4):955–971.

Takizawa K, Tezduyar TE, Buscher A, Asada S (2014) Spacetime fluid mechanics computation of heart valve models. *Comput Mech* 54(4):973–986.

K. Takizawa, T.E. Tezduyar, R. Kolesar, C. Boswell, T. Kanai and K. Montel, “Multiscale methods for gore curvature calculations from FSI (Fluid-Structure Interaction) modeling of spacecraft parachutes”, *Computational Mechanics*, Vol. 54, pp 1461-1476, 2014

Takizawa K, Tezduyar TE, Buscher A (2015) Spacetime computational analysis of MAV flapping-wing aerodynamics with wing clapping. *Comput Mech* 55(6):1131–1141.

Bazilevs Y, Takizawa K, Tezduyar TE (2015) New directions and challenging computations in fluid dynamics modeling with stabilized and multiscale methods. *Math Models Methods Appl Sci* 25(12):2217–2226.

Takizawa K, Tezduyar TE, Kuraishi T (2015) Multiscale spacetime methods for thermo-fluid analysis of a ground vehicle and its tires. *Math Models Methods Appl Sci* 25(12):2227–2255.

Takizawa K, Tezduyar TE, Mochizuki H, Hattori H, Mei S, Pan L, Montel K (2015) Spacetime VMS method for flow computations with slip interfaces (ST-SI). *Math Models Methods Appl Sci* 25(12):2377–2406.

Takizawa K, Tezduyar TE, Asada S, Kuraishi T (2016) SpaceTime method for flow computations with slip interfaces and topology changes (ST-SI-TC). *Comput Fluids* 141:124–134.

Takizawa K, Tezduyar TE, Terahara T (2016) Ram-air parachute structural and fluid mechanics computations with the space-time isogeometric analysis (ST-IGA). *Comput Fluids* 141:191–200

Takizawa K, Tezduyar TE, Kuraishi T, Tabata S, Takagi H (2016) Computational thermo-fluid analysis of a disk brake. *Comput Mech* 57(6):965–977

Takizawa K, Tezduyar TE, Otoguro Y, Terahara T, Kuraishi T, Hattori H (2017) Turbocharger flow computations with the spacetime isogeometric analysis (ST-IGA). *Comput Fluids* 142:15–20.

Takizawa K, Tezduyar TE, Hattori H (2017) Computational analysis of flow-driven string dynamics in turbomachinery. *Comput Fluids* 142:109–117

Takizawa K, Tezduyar TE, Terahara T, Sasaki T (2017) Heart valve flow computation with the integrated SpaceTime VMS. Slip interface, topology change and isogeometric discretization methods. *Comput Fluids* 158:176–188.

Otoguro Y, Takizawa K, Tezduyar TE (2017) Spacetime VMS computational flow analysis with isogeometric discretization and a general-purpose NURBS mesh generation method. *Comput Fluids* 158:189–200.

T.E. Tezduyar, K. Takizawa and Y. Bazilevs, “Fluid-structure interaction and flows with moving boundaries and interfaces”, *Encyclopedia of Computational Mechanics Second Editions, Part 2 Fluids* (eds. E. Stein, R. De Borst and T.J.R. Hughes), Wiley, published online December 15 2017

K. Takizawa, T. E. Tezduyar, Y. Otoguro, Stabilization and discontinuity-capturing parameters for spacetime flow computations with finite element and isogeometric discretizations, *Comput Mech*.published online (2018).

Kenji Takizawa, Tayfun E. Tezduyar and Takafumi Sasaki, “Isogeometric hyperelastic shell analysis with out-of-plane deformation mapping”, *Computational Mechanics*, Vol. 63, No. 4, pp 681-700, April 2019

Tayfun E. Tezduyar and Kenji Takizawa, “Space-time computations in practical engineering applications: A summary of the 25-year history”, *Computational Mechanics*, Vol. 63, No. 4, pp 747-753, April 2019