

Takafumi Sasaki — *Curriculum Vitae*

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Education

B.Eng. Engineering, Waseda University, March 2014
M.Eng. Engineering, Waseda University, March 2016

Honors and Awards

Graduate Program for Embodiment Informatics (Waseda University Program for Leading Graduate Schools), April 2014–March 2019
Outstanding Final Presentation, English for Science and Technology Program in U.C. Davis (2014)
Outstanding Presentation Award, The 18th International Conference on Finite Elements in Flow Problems (2015)
Early Bird Young Scientists' Community 2017, Waseda Research Institute for Science and Engineering (2017)

Publications Summary

2	ISI-Indexed Journal Articles	2	Chapters in Books
9	Invited Conference Papers	27	Contributed Conference Papers

Publications

ISI-Indexed Journal Articles

- 1 K. Takizawa, T.E. Tezduyar, and **T. Sasaki**, “Aorta modeling with the element-based zero-stress state and isogeometric discretization”, *Computational Mechanics*, **59** (2017) 265–280, doi: [10.1007/s00466-016-1344-5](https://doi.org/10.1007/s00466-016-1344-5).
- 2 K. Takizawa, T.E. Tezduyar, T. Terahara, and **T. Sasaki**, “Heart valve flow computation with the integrated Space–Time VMS, Slip Interface, Topology Change and Isogeometric Discretization methods”, *Computers & Fluids*, published online, November 2016, doi: [10.1016/j.compfluid.2016.11.012](https://doi.org/10.1016/j.compfluid.2016.11.012).

Chapters in Books

- 1 K. Takizawa, T.E. Tezduyar, and **T. Sasaki**, “Estimation of element-based zero-stress state in arterial FSI computations with isogeometric wall discretization”, in P. Wriggers and T. Lenarz, editors, *Biomedical Technology – Modeling, Experiments and Simulations*, Lecture Notes in Applied and Computational Mechanics, Springer, 2017.
- 2 K. Takizawa, T.E. Tezduyar, T. Terahara, and **T. Sasaki**, “Heart valve flow computation with the Space–Time Slip Interface Topology Change (ST-SI-TC) method and Isogeometric Analysis (IGA)”, in P. Wriggers and T. Lenarz, editors, *Biomedical Technology – Modeling, Experiments and Simulations*, Lecture Notes in Applied and Computational Mechanics, Springer, 2017.

Invited Conference Papers

- 1 **T. Sasaki**, K. Takizawa, T.E. Tezduyar, H. Takagi, K. Itatani, S. Miyazaki, and K. Miyaji, “Arterial dynamics computation with surface-extraction medical-image-based time-dependent anatomical models and element-based zero-stress estimates”, in *Extended Abstracts of the 18th International Conference on Finite Elements in Flow Problems*, Taipei, Taiwan, (2015).
- 2 **T. Sasaki**, H. Uchikawa, K. Takizawa, T.E. Tezduyar, K. Itatani, S. Miyazaki, and K. Miyaji, “Arterial wall modeling with time-dependent medical images”, in *Extended Abstracts of 13th US National Congress on Computational Mechanics*, California, USA, (2015).
- 3 **T. Sasaki**, K. Takizawa, T.E. Tezduyar, H. Uchikawa, and K. Itatani, “Zero-stress state estimation in structural mechanics modeling of a human aorta with NURBS representation”, in *Proceedings of JST CREST-PRESTO Symposium 2015 Mathematics for the 22nd Century*, Tokyo, Japan, (2015).
- 4 **T. Sasaki**, K. Takizawa, T.E. Tezduyar, H. Uchikawa, and K. Itatani, “Zero-stress state estimation in structural mechanics modeling of a human aorta with NURBS representation”, in *Proceedings of KSME-JSME Joint Symposium on Computational Mechanics & CAE 2015*, Tokyo, Japan, (2015).
- 5 **T. Sasaki**, K. Takizawa, T.E. Tezduyar, H. Takagi, K. Itatani, S. Miyazaki, and K. Miyaji, “Arterial wall modeling with time-dependent surface extraction from medical images”, in *Extended Abstracts of International Conference on Biomedical Technology 2015*, Hannover, Germany, (2015).
- 6 **T. Sasaki**, K. Takizawa, H. Uchikawa, H. Takagi, T.E. Tezduyar, and K. Itatani, “Aorta fsi analysis with the element-based zero-stress state estimation and isogeometric discretization”, in *Extended Abstracts of 12th World Congress on Computational Mechanics (WCCM XII) and 6th Asia-Pacific Congress on Computational Mechanics (APCOM VI)*, Seoul, Korea, (2016).
- 7 **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Estimation of arterial element-based zero-stress state with t-splines wall discretization”, in *Proceedings of USACM Conference on Isogeometric Analysis and Meshfree Methods*, California, USA, (2016).
- 8 T. Terahara, K. Takizawa, T.E. Tezduyar, and **T. Sasaki**, “Heart valve flow analysis with the integrated space-time vms, slip interface, and topology change methods and isogeometric discretization”, in *Extended Abstracts of the 2017 Engineering Mechanics Institute Conference*, California, USA, (2017).
- 9 **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Arterial element-based zero-stress state estimation with t-spline representation”, in *Proceedings of USACM Conference on Isogeometric Analysis and Meshfree Methods*, Pavia, Italy, (2017), accepted.

Contributed Conference Papers

- 1 **T. Sasaki**, K. Takizawa, K. Itatani, H. Takagi, T.E. Tezduyar, S. Miyazaki, and K. Miyaji, “An aorta dynamics computation with the element-based zero-stress state estimation method”, in *Proceedings of JSME 25th Conference on Frontiers in Bioengineering*, Tottori, Japan, (2014).
- 2 **T. Sasaki**, K. Takizawa, K. Itatani, H. Takagi, T.E. Tezduyar, S. Miyazaki, and K. Miyaji, “Arterial wall modeling and medical image mapping based on element-based zero-stress state estimation method”, in *Proceedings of JSME 27th Bioengineering Conference*, Niigata, Japan, (2015).
- 3 M. Adachi, G.A. Domingues, **T. Sasaki**, R. Tsumura, T. Koshi, and K. Mori, “Novel social innovation concept based on the viewpoint of the infrastructure user”, in *Proceedings of 2015 IEEE 12th International Symposium on Autonomous Decentralized Systems*, Taichung, Taiwan, (2015).
- 4 **T. Sasaki**, H. Uchikawa, K. Takizawa, T.E. Tezduyar, K. Itatani, S. Miyazaki, and K. Miyaji, “Physically based mapping and arterial wall modeling”, in *Proceedings of the 20th Japan Society for Computational Engineering and Science Conference*, Ibaraki, Japan, (2015).
- 5 **T. Sasaki**, H. Uchikawa, K. Takizawa, T.E. Tezduyar, K. Itatani, S. Miyazaki, and K. Miyaji, “Arterial wall modeling with time-dependent medical images”, in *Proceedings of Mechanical Engineering Congress, 2015 Japan*, Hokkaido, Japan, (2015).
- 6 H. Uchikawa, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Modeling of the outlet BC in aorta fluid mechanics computation with the space-time isogeometric analysis”, in *Proceedings of the 29th Symposium on Computational Fluid Dynamics*, Fukuoka, Japan, (2015).

- 7 **T. Sasaki**, K. Takizawa, H. Uchikawa, T.E. Tezduyar, and K. Itatani, “Zero-stress state estimation of aortic wall with NURBS representation”, in *Proceedings of JSME 28th Bioengineering Conference*, Tokyo, Japan, (2016).
- 8 A. Takahashi, K. Suto, Y. Tobe, Y. Matsuhashi, S. Suzuki, T. .Yagi, **T. Sasaki**, and K. .Takizawa, “Development of visualization method for flow field around aortic valve model with stereo PIV”, in *Proceedings of JSME 28th Bioengineering Conference*, Tokyo, Japan, (2016).
- 9 **T. Sasaki**, K. Takizawa, T.E. Tezduyar, and K. Itatani, “Aorta modeling with zero-stress estimation, material-point tracking, and isogeometric discretization”, in *Proceedings of the 21th Japan Society for Computational Engineering and Science Conference*, Niigata, Japan, (2016).
- 10 T. Terahara, K. Takizawa, T.E. Tezduyar, and **T. Sasaki**, “Heart-valve fluid mechanics computation with asymmetric valve motion”, in *Proceedings of the 21th Japan Society for Computational Engineering and Science Conference*, Niigata, Japan, (2016).
- 11 H. Uchikawa, **T. Sasaki**, T. Terahara, K. Takizawa, and T.E. Tezduyar, “Periodicity studies in pulsating-arterial-flow computational analysis with smooth geometries and high-fidelity boundary-layer representation”, in *Proceedings of the 21th Japan Society for Computational Engineering and Science Conference*, Niigata, Japan, (2016).
- 12 **T. Sasaki**, K. Takizawa, T.E. Tezduyar, and K. Itatani, “Aortic zero-stress state estimation with isogeometric discretization”, in *Extended Abstracts of 29th The Computational Mechanics Conference*, Nagoya, Japan, (2016).
- 13 H. Uchikawa, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “A space–time refinement study of the aorta fluid mechanics computations”, in *Extended Abstracts of 29th The Computational Mechanics Conference*, Nagoya, Japan, (2016).
- 14 H. Uchikawa, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Vortex structure and periodicity studies on aorta and aortic valve flow analysis”, in *Extended Abstracts of JSME 94th Fluids Engineering Conference*, Yamaguchi, Japan, (2016).
- 15 K. Shiozaki, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Computational analysis of aortic-valve fluid mechanics and experimental validation”, in *Proceedings of the 30th Symposium on Computational Fluid Dynamics*, Tokyo, Japan, (2016).
- 16 K. Shiozaki, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Computational analysis and experimental validation of aortic valve fluid mechanics with experiment-based anatomical models”, in *Proceedings of JSME 29th Bioengineering Conference*, Nagoya, Japan, (2017).
- 17 A. Yoshida, **T. Sasaki**, T. Terahara, K. Takizawa, and T.E. Tezduyar, “Estimation of zero-stress state in patient-specific aorta models with branches”, in *Proceedings of JSME 29th Bioengineering Conference*, Nagoya, Japan, (2017).
- 18 H. Uchikawa, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Fluid and structure analysis of the human aorta — fluid mechanics analysis with space-time isogeometric discretization —”, in *Proceedings of the 22th Japan Society for Computational Engineering and Science Conference*, Saitama, Japan, (2017).
- 19 K. Shiozaki, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Space–time isogeometric analysis of aortic-valve fluid mechanics and flow validation near the leaflet surfaces”, in *Proceedings of the 22th Japan Society for Computational Engineering and Science Conference*, Saitama, Japan, (2017).
- 20 A. Yoshida, **T. Sasaki**, T. Terahara, K. Takizawa, and T.E. Tezduyar, “Estimation of zero-stress state in patient-specific aorta models with branches”, in *Proceedings of the 22th Japan Society for Computational Engineering and Science Conference*, Saitama, Japan, (2017).
- 21 T. Terahara, K. Shiozaki, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Heart valve flow analysis with isogeometric discretization and resolved jet flow near leaflet surfaces”, in *Proceedings of Mechanical Engineering Congress, 2017 Japan*, Saitama, Japan, (2017).
- 22 H. Uchikawa, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Patient-specific aorta flow analysis with the space–time vms method and isogeometric discretization”, in *Proceedings of Mechanical Engineering Congress, 2017 Japan*, Saitama, Japan, (2017).

- 23 **T. Sasaki**, K. Takizawa, A. Yoshida, and T.E. Tezduyar, “Arterial zero-stress estimation –basic study–”, in *Extended Abstracts of JSME 30th Computational Mechanics Division Conference*, Osaka, Japan, (2017), accepted.
- 24 A. Yoshida, K. Takizawa, **T. Sasaki**, and T.E. Tezduyar, “Arterial zero-stress estimation –extension to complex geometry–”, in *Extended Abstracts of JSME 30th Computational Mechanics Division Conference*, Osaka, Japan, (2017), accepted.
- 25 K. Shiozaki, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Aortic valve and st blood flow analysis”, in *Extended Abstracts of JSME 30th Computational Mechanics Division Conference*, Osaka, Japan, (2017), accepted.
- 26 T. Terahara, **T. Sasaki**, K. Shiozaki, K. Takizawa, and T.E. Tezduyar, “Aortic valve analysis based on high-fidelity computational fluid dynamics”, in *Extended Abstracts of 28th The Biofrontier Symposium*, Tokushima, Japan, (2017), accepted.
- 27 K. Shiozaki, T. Terahara, **T. Sasaki**, K. Takizawa, and T.E. Tezduyar, “Effect of aortic valve shape on flow”, in *Extended Abstracts of 28th The Biofrontier Symposium*, Tokushima, Japan, (2017), accepted.

Invited Presentations

Japanese

- 1 Forum: Concept-Oriented Research and Technology Development, Waseda University, Tokyo, August 2014.
- 2 The 1st Joint Symposium between Leading Graduate Program in Science and Engineering & Graduate Program for Embodiment Informatics, Waseda University, Tokyo, March 2016.

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