

Takashi Kuraishi — Curriculum Vitae

Contact

Junior Researcher
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Education

B.Eng. Engineering, Waseda University, March 2014
M.Eng. Engineering, Waseda University, March 2016
Ph.D. Engineering, Waseda University, March 2019

Honors and Awards

Poster Award 1st Place, “Multiscale Thermo-Fluid Analysis of Tires at Road Conditions”, Advances in Computational Fluid–Structure Interaction and Flow Simulation (2014)
Visualization Award for Outstanding Performance, “Multiscale Thermo-Fluid Analysis of Truck Tires at Road Conditions”, The 19th Japan Society for Computational Engineering and Science Conference (2014)
Best Student Presentation Award, “Multiscale Thermo-Fluid Analysis of a Tire under Road Conditions”, The 18th International Conference on Finite Elements in Flow Problems (2015)
Student Presentation Award, “Multiscale Thermo-Fluid Analysis of a Tire”, The 34th JSST Annual Conference International Conference on Simulation Technology (2015)
20th Anniversary JSCES Scholarship Award, The 21th Computational Mechanics Conference (2016)
IACM Travel Award to Attend WCCM XII, International Association for Computational Mechanics (2016)
Early Bird-Young Scientists’ Community 2016, Waseda Research Institute for Science and Engineering (2016)
Best CFD Visualization Award 2nd Prize, “Tire Aerodynamic Analysis and Verification with the Space–Time Slip Interface Topology Change (ST-SI-TC) Method and NURBS in Space”, The 30th Computational Fluid Dynamics Symposium (2016)
Research Fellowship for Young Scientists (DC2) 17J10893 (JSPS), April 2017 – March 2019
Grant-in-Aid for Research Activity start-up 19K24355 (JSPS), August 2019 – March 2021
Inoue Research Award for Young Scientists 2019, “Space–Time Computational Analysis of Tire Aerodynamics with Actual Geometry, Road Contact, Tire Deformation and Fluid Friction“

Publications Summary

7	Journal Articles Indexed by the Web of Science	1	Book Chapter
13	Invited Conference Papers	17	Contributed Conference Papers

Publications

Journal Articles Indexed by the Web of Science

- 1 K. Takizawa, T.E. Tezduyar, and **T. Kuraishi**, “Multiscale ST methods for thermo-fluid analysis of a ground vehicle and its tires”, *Mathematical Models and Methods in Applied Sciences*, **25** (2015) 2227–2255, doi:[10.1142/S0218202515400072](https://doi.org/10.1142/S0218202515400072).
- 2 K. Takizawa, T.E. Tezduyar, **T. Kuraishi**, S. Tabata, and H. Takagi, “Computational thermo-fluid analysis of a disk brake”, *Computational Mechanics*, **57** (2016) 965–977, doi:[10.1007/s00466-016-1272-4](https://doi.org/10.1007/s00466-016-1272-4).

- 3 K. Takizawa, T.E. Tezduyar, Y. Ootoguro, T. Terahara, **T. Kuraishi**, and H. Hattori, “Turbocharger flow computations with the Space–Time Isogeometric Analysis (ST-IGA)”, *Computers & Fluids*, **142** (2017) 15–20, doi:[10.1016/j.compfluid.2016.02.021](https://doi.org/10.1016/j.compfluid.2016.02.021).
- 4 K. Takizawa, T.E. Tezduyar, S. Asada, and **T. Kuraishi**, “Space–time method for flow computations with slip interfaces and topology changes (ST-SI-TC)”, *Computers & Fluids*, **141** (2016) 124–134, doi:[10.1016/j.compfluid.2016.05.006](https://doi.org/10.1016/j.compfluid.2016.05.006).
- 5 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Tire aerodynamics with actual tire geometry, road contact and tire deformation”, *Computational Mechanics*, **63** (2019) 1165–1185, doi:[10.1007/s00466-018-1642-1](https://doi.org/10.1007/s00466-018-1642-1).
- 6 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Space–Time Isogeometric flow analysis with built-in Reynolds-equation limit”, *Mathematical Models and Methods in Applied Sciences*, **29** (2019) 871–904, doi:[10.1142/S0218202519410021](https://doi.org/10.1142/S0218202519410021).
- 7 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Space–time computational analysis of tire aerodynamics with actual geometry, road contact, tire deformation, road roughness and fluid film”, *Computational Mechanics*, **64** (2019) 1699–1718, doi:[10.1007/s00466-019-01746-8](https://doi.org/10.1007/s00466-019-01746-8).

Book Chapters

- 1 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Space–time computational analysis of tire aerodynamics with actual geometry, road contact and tire deformation”, in T.E. Tezduyar, editor, *Frontiers in Computational Fluid–Structure Interaction and Flow Simulation: Research from Lead Investigators under Forty – 2018*, Modeling and Simulation in Science, Engineering and Technology, 337–376, Springer, 2018, ISBN 978-3-319-96468-3, doi:[10.1007/978-3-319-96469-0_8](https://doi.org/10.1007/978-3-319-96469-0_8).

Invited Conference Papers

- 1 **T. Kuraishi**, K. Takizawa, S. Tabata, and T.E. Tezduyar, “Multiscale thermo-fluid analysis of tires at road conditions”, in *A Conference Celebrating the 60th Birthday of Tayfun E. Tezduyar*, Tokyo, Japan, (2014).
- 2 **T. Kuraishi**, K. Takizawa, S. Asada, and T.E. Tezduyar, “Multiscale thermo-fluid analysis of a tire under road conditions”, in *Extended Abstracts of the 18th International Conference on Finite Elements in Flow Problems*, Taipei, Taiwan, (2015).
- 3 Y. Ootoguro, T. Terahara, K. Takizawa, T.E. Tezduyar, **T. Kuraishi**, and H. Hattori, “A higher-order ST-VMS method for turbocharger analysis”, in *Proceedings of the 13th Asian International Conference on Fluid Machinery*, Tokyo, Japan, (2015).
- 4 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Multiscale thermo-fluid analysis of a tire”, in *Proceedings of The 34th JSST Annual International Conference on Simulation Technology*, Toyama, Japan, (2015).
- 5 **T. Kuraishi**, S. Tabata, H. Takagi, K. Takizawa, and T.E. Tezduyar, “Computational thermo-fluid analysis in thermal-stress prediction for a disk brake”, in *Extended Abstracts of KSME–JSME Joint Symposium on Computational Mechanics & CAE 2015*, Tokyo, Japan, (2015).
- 6 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Tire aerodynamic analysis with the space–time slip interface topology change (ST-SI-TC) method and NURBS in space”, in *Extended Abstracts of USACM Conference on Isogeometric Analysis and Meshfree Methods*, California, USA, (2016).
- 7 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Tire aerodynamic analysis with space–time interface-tracking with topology change, slip interfaces and isogeometric discretization”, in *Extended Abstracts of the 12th World Congress on Computational Mechanics (WCCM XII) and the 6th Asia–Pacific Congress on Computational Mechanics (APCOM VI)*, Seoul, Korea, (2016).
- 8 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Tire aerodynamic analysis and verification with the space–time slip interface topology change method and isogeometric discretization”, in *Extended Abstracts of the 19th International Conference on Finite Elements in Flow Problems*, Rome, Italy, (2017), doi:[10.13140/RG.2.2.23982.72003](https://doi.org/10.13140/RG.2.2.23982.72003).
- 9 M. Omori, **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “High spatial and temporal resolution computational analysis of flow between an engine cylinder and moving piston”, in *Proceedings of the 11th Pacific Symposium on Flow Visualization and Image Processing*, Kumamoto, Japan, (2017).

- 10 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “ST-SI-TC-IGA computational analysis of flow around a tire with actual geometry, road contact and tire deformation”, in *Advances in Computational Fluid–Structure Interaction and Flow Simulation*, Banff, Canada, (2018).
- 11 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “ST-SI-TC-IGA computational analysis of flow around a tire with actual geometry, road contact and tire deformation”, in *International Workshop on Multiphase Flows: Analysis, Modelling and Numerics*, Tokyo, Japan, (2018).
- 12 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Space–time computational analysis of tire aerodynamics with actual geometry, road contact, tire deformation and fluid friction”, in *Advances in Computational Fluid–Structure Interaction and Flow Simulation*, Okinawa, Japan, (2019).
- 13 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Space—time variational multiscale method and isogeometric analysis with topology change”, in *International Workshop on Multiphase Flows: Analysis, Modelling and Numerics*, Tokyo, Japan, (2019).

Contributed Conference Papers

- 1 **T. Kuraishi**, K. Takizawa, S. Tabata, H. Takagi, N. Kostov, and T.E. Tezduyar, “Thermo-fluid analysis of a tire with heat sources from tire heating and engine exhaust”, in *Proceedings of the 27th Symposium on Computational Fluid Dynamics*, Aichi, Japan, (2013).
- 2 **T. Kuraishi**, K. Takizawa, S. Tabata, H. Takagi, S. Asada, and T.E. Tezduyar, “Multiscale thermo-fluid analysis of a tire”, in *Proceedings of the 19th Japan Society for Computational Engineering and Science Conference*, Hiroshima, Japan, (2014).
- 3 **T. Kuraishi**, K. Takizawa, S. Tabata, H. Takagi, and T.E. Tezduyar, “Multiscale thermo-fluid analysis of a tire with and without treads”, in *Proceedings of the 28th Symposium on Computational Fluid Dynamics*, Tokyo, Japan, (2014).
- 4 Y. Otoguro, **T. Kuraishi**, T. Terahara, K. Takizawa, and T.E. Tezduyar, “Space–time isogeometric analysis”, in *Proceedings of Numerical Analysis: New Developments for Elucidating Interdisciplinary Problems*, Kyoto, Japan, (2015).
- 5 Y. Otoguro, **T. Kuraishi**, Y. Tsutsui, T. Kanai, H. Hattori, T. Sasaki, K. Takizawa, and T.E. Tezduyar, “Space–time finite element analysis using NURBS basis functions”, in *Proceedings of the Union Conference on Japan Society for Industrial and Applied Mathematics 2015*, Tokyo, Japan, (2015).
- 6 **T. Kuraishi**, S. Tabata, K. Takizawa, H. Takagi, and T.E. Tezduyar, “Thermo-fluid analysis of a disk brake”, in *Proceedings of the 20th Japan Society for Computational Engineering and Science Conference*, Ibaraki, Japan, (2015).
- 7 **T. Kuraishi**, S. Tabata, K. Takizawa, H. Takagi, and T.E. Tezduyar, “Computational thermo-fluid analysis in thermal-stress prediction for a disk brake”, in *Proceedings of the 29th Symposium on Computational Fluid Dynamics*, Fukuoka, Japan, (2015).
- 8 **T. Kuraishi**, K. Takizawa, S. Asada, and T.E. Tezduyar, “Tire flow analysis with actual tire geometry, tire deformation and road contact”, in *Proceedings of the 21st Japan Society for Computational Engineering and Science Conference*, Niigata, Japan, (2016).
- 9 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Tire aerodynamic analysis with the space–time slip interface topology change (ST-SI-TC) method and NURBS in space”, in *Proceedings of JSME 29th Computational Mechanics Division Conference*, Aichi, Japan, (2016).
- 10 **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Tire aerodynamic analysis and verification with the space–time slip interface topology change (ST-SI-TC) method and NURBS in space”, in *Proceedings of the 30th Symposium on Computational Fluid Dynamics*, Tokyo, Japan, (2016).
- 11 M. Omori, **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Flow analysis of an engine cylinder and moving piston with the space–time isogeometric method”, in *Proceedings of the 30th Symposium on Computational Fluid Dynamics*, Tokyo, Japan, (2016).
- 12 T. Ohara, **T. Kuraishi**, Y. Otoguro, K. Takizawa, and T.E. Tezduyar, “Thermo-fluid analysis of an exhaust-pipe flow with the actual channel geometry”, in *Proceedings of 2016 JSAE Annual Spring Congress*, Kanagawa, Japan, (2016).

- 13 M. Otori, **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Estimation of leakage flow between an engine cylinder and moving piston with the space–time isogeometric analysis”, in *Proceedings of the 22nd Japan Society for Computational Engineering and Science Conference*, Saitama, Japan, (2017).
- 14 T. Chigawa, S. Utsuka, **T. Kuraishi**, K. Yamada, K. Takizawa, and T.E. Tezduyar, “Computational analysis of flow-driven particulate-matter deposits in diesel-oxidation catalysts”, in *Proceedings of the 32th Symposium on Computational Fluid Dynamics*, Tokyo, Japan, (2018).
- 15 S. Yamasaki, **T. Kuraishi**, Y. Saito, S. Nishikawa, M. Hori, K. Takizawa, and T.E. Tezduyar, “Car and tire aerodynamics with road contact and tire deformation”, in *Proceedings of the 32th Symposium on Computational Fluid Dynamics*, Tokyo, Japan, (2018).
- 16 S. Utsuka, **T. Kuraishi**, T. Chigawa, K. Yamada, K. Takizawa, and T.E. Tezduyar, “Wall-thickness effects in diesel-oxidation catalysts”, in *Proceedings of the 24th Japan Society for Computational Engineering and Science Conference*, Saitama, Japan, (2019).
- 17 N. Yano, **T. Kuraishi**, K. Takizawa, and T.E. Tezduyar, “Computational analysis of foil bearing with foil thickness”, in *Proceedings of the 24th Japan Society for Computational Engineering and Science Conference*, Saitama, Japan, (2019).

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