Shigeki KANEKO

# Education

Mar. 2015

B.S. Engineering, Department of Systems Innovation, Faculty of Engineering, The University of Tokyo

Mar. 2017

M.S. Engineering, Department of Systems Innovation, School of Engineering, The University of Tokyo

Sep. 2018 - Sep. 2019

Visiting Scholar, Structural Engineering, University of California, San Diego

Apr. 2021

Ph.D. Engineering, Department of Systems Innovation, School of Engineering, The University of Tokyo

# Work history

Apr. 2021 – Mar. 2024

Assistant Professor, Department of Systems Innovation, School of Engineering, The University of Tokyo

Mar. 2024 –

Assistant Professor, Electrical & Mechanical Engineering, Nagoya Institute of Technology

# Publications

\*...Corresponding author

1. **Shigeki Kaneko**\*. Using Gappy-POD to derive a reduced quadrature rule. *Finite Elements in Analysis and Design*. 2025 Accepted
2. Kyohei Shintate\*, Naoki Morita, **Shigeki Kaneko**, Naoto Mitsume. A Hierarchical Reduced Order Modeling for Distributed Memory Parallel Computers. *Transactions of the Japan Society for Computational Engineering and Science*, Vol. 2025, 20251001, 2025
3. **Shigeki Kaneko**, Naoto Mitsume, Shinobu Yoshimura\*. Large-Scale 3D Thermal Transfer Analysis with 1D Model of Piped Cooling Water. *Digital Engineering and Digital Twin*. Vol. 2, pp. 33-48, 2024
4. Nozomi Magome, Naoki Morita, **Shigeki Kaneko**, Naoto Mitsume\*. Higher-continuity s-version of finite element method with B-spline functions. *Journal of Computational Physics*. Vol. 497, 112593, 2024
5. **Shigeki Kaneko**\*, Shinobu Yoshimura. Coupled iterative partitioning analysis for flow-driven piezoelectric energy harvesters. *Journal of Fluids and Structures*. Vol. 123, 104009, 2023
6. **Shigeki Kaneko**\*, Shinobu Yoshimura. POD-Galerkin FSI Analysis for Flapping Motion. *Biomimetics*. Vol. 8, 523, 2023
7. Sota Goto\*, **Shigeki Kaneko**, Amane Takei, Shinobu Yoshimura. An Efficient Uncertainty Quantification Method Using Non-Intrusive Polynomial Chaos Approach. *Transactions of the Japan Society for Computational Engineering and Science*, Vol. 2022, 20220013, 2022
8. Kosuke Kawkami\*, **Shigeki Kaneko**, Giwon Hong, Hideaki Miyamoto, Shinobu Yoshimura. Fluid–Structure Interaction Analysis of Flexible Flapping Wing in the Martian Environment. *Acta Astronautica*. Accepted
9. **Shigeki Kaneko**\*, Shinobu Yoshimura. Fluid-Structure-Control Interaction Simulation for Flutter Control Problems. *Finite Elements in Analysis and Design*. Accepted
10. **Shigeki Kaneko**\*, Shinobu Yoshimura. Coupled Analysis for Active Control and Energy Harvesting from Flow-Induced Vibration. *Journal of Advanced Simulation in Science and Engineering*. Accepted
11. **Shigeki Kaneko**, Haoyan Wei, Qizhi He, J.S. Chen\*, Shinobu Yoshimura. A Hyper-Reduction Computational Method for Accelerated Modeling of Thermal Cycling-induced Plastic Deformations. *Journal of the Mechanics and Physics of Solids*. Vol. 151, 104385, 2021
12. Giwon Hong, **Shigeki Kaneko**\*, Naoto Mitsume, Tomonori Yamada, Shinobu Yoshimura. Robust Fluid-Structure Interaction Analysis for Parametric Study of Flapping Motion. *Finite Elements in Analysis and Design*. Vol. 183-184, 103494, 2021
13. Kosuke Kawakami\*, Naoto Mitsume, **Shigeki Kaneko**, Shinobu Yoshimura. Improvement in Interpolation/Distribution Function of Direct-Forcing/Fictitious Domain Method for Fluid-Rigid Body Interactions. *Transactions of the Japan Society for Computational Engineering and Science*, Vol. 2020, 20200014, 2020
14. **Shigeki Kaneko**\*, Giwon Hong, Naoto Mitsume, Tomonori Yamada, Shinobu Yoshimura. Numerical Study of Active Control by Piezoelectric Materials for Fluid-Structure Interaction Problems. *Journal of Sound and Vibration*. Vol. 435, pp. 23-35, 2018
15. **Shigeki Kaneko**\*, Giwon Hong, Naoto Mitsume, Tomonori Yamada, Shinobu Yoshimura. Partitioned-Coupling FSI Analysis with Active Control. *Computational Mechanics*. Vol. 60, No. 4, pp. 549-558, 2017

# International Conference Papers

1. **S. Kaneko**. Empirical Cubature Method Based on Gappy-POD. JSST, No. 43, Kobe, Japan, September, 2024
2. N. Magome, N. Morita, **S. Kaneko**, N. Mitsume. B-spline s-version of finite element method for boundary value problems for fluids. WCCM, No. 16, Vancouver, Canada, July, 2024
3. K. Shintate, N. Morita, **S. Kaneko**, N. Mitsume. Hierarchical reduced order modeling for distributed memory parallel computers. WCCM, No. 16, Vancouver, Canada, July, 2024
4. K. Shintate, N. Morita, **S. Kaneko**, N. Mitsume. Localized Model Order Reduction and Hierarchical Domain Decomposition Methods for Distributed Memory Computers. IUTAM 2024, Tokyo, Japan, May, 2024
5. N. Magome, N. Morita, **S. Kaneko**, N. Mitsume. Development of B-spline Based S-Version of Finite Element Method. IUTAM 2024, Tokyo, Japan, May, 2024
6. S. Goto, A. Takei, **S. Kaneko**, S. Yoshimura. An Efficient Uncertainty Quantification Method for Large-Scale High-Frequency Electromagnetic Field Problems. COMPUMAG, No. 24, Kyoto, Japan, May, 2023
7. **S. Kaneko**, S. Yoshimura. Reduced-order modeling in aeroelasticity of flapping motion. CFC, No. 22, Cannes, France, April, 2023 **(Keynote)**
8. K. Kawakami, **S. Kaneko**, G. Hong, H. Miyamoto, S. Yoshimura. Fluid-Structure Interaction Analysis of Flapping-Wing Motion in the Martian Environment. WCCM, No. 15, Yokohama, Japan (Online), August, 2022
9. S. Goto, A. Takei, **S. Kaneko**, S. Yoshimura. Uncertainty Quantification Using Non-Intrusive Polynomial Chaos Method for Large-Scale Electromagnetic Wave Analysis. WCCM, No. 15, Yokohama, Japan (Online), August, 2022
10. S. Yoshimura, H. Watanabe, R. Kurose, T. Yamada, **S. Kaneko**, J. Yoshida, K. Yodo. Super-simulation of Coal Gasification Facility on Fugaku. WCCM, No. 15, Yokohama, Japan (Online), August, 2022
11. **S. Kaneko**. Circuit-integrated fluid-structure-piezoelectricity interaction analysis for flow-driven energy harvesters. WCCM, No. 15, Yokohama, Japan (Online), August, 2022
12. **S. Kaneko**, S. Yoshimura. Coupled Analysis for Flow-Driven Energy Harvester. ECCOMAS, No. 8, Oslo, Norway, June, 2022
13. S. Yoshimura, S. Goto, **S. Kaneko**, A. Takei. Non-Statistical Uncertainty Quantification Analysis with Parallel CAE Solvers, ADVENTURE. ECCOMAS, No. 8, Oslo, Norway, June, 2022
14. **S. Kaneko**, S. Yoshimura. Coupled Analysis for Active Control and Energy Harvesting from Flow-Induced Vibration. JSST, No. 40, Kyoto, Japan (Online), September, 2021
15. S. Goto, A. Takei, **S. Kaneko**, S. Yoshimura. Heat Transfer Analysis with Uncertainty Using Non-Statistical Uncertainty Quantification Method and Parallelized Heat Transfer Analysis Tool. JSST, No. 40, Kyoto, Japan (Online), September, 2021
16. **S. Kaneko**, S. Yoshimura. Numerical Study on Active Control of Limit Cycle Oscillation with Energy Harvesting. USNCCM, No. 16, Online, July, 2021
17. **S. Kaneko**, N. Mitusme, T. Yamada, S. Yoshimura. Numerical study on the feedback control of fluid-structure-interaction induced vibration. WCCM, No. 14, Paris, France (Online), January, 2021
18. K. Kawakami, **S. Kaneko**, G. Hong, S. Yoshimura. Fluid-Structure Interaction Analysis of Flapping-Wing Motion on Mars. WCCM, No. 14, Paris, France (Online), January, 2021
19. **S. Kaneko**, S. Yoshimura. Application of Fluid-structure-control Interaction Simulation to Two-dimensional Flutter Control Problem. COMPSAFE, No. 3, Kobe, Japan (Online), December, 2020
20. K. Kawakami, **S. Kaneko**, G. Hong, S. Yoshimura. Fluid-Structure Interaction Analysis of Flapping-Wing Motion on the Martian Environment. COMPSAFE, No. 3, Kobe, Japan (Online), December, 2020
21. **S. Kaneko**, Q. He, H. Wei, J.S. Chen, S. Yoshimura. Hyper reduced-order RKPM modeling for solder joint fatigue under thermal cycling. APCOM, Taipei, Taiwan, December, 2019
22. **S. Kaneko**, Q. He, H. Wei, J.S. Chen, S. Yoshimura. Reduced-order Model Techniques for RKPM-based Thermal Fatigue Analysis of Solder Joints. USNCCM, No. 15, Texas, USA, July, 2019
23. **S. Kaneko**, G. Hong, N. Mitsume, T. Yamada, S. Yoshimura. Numerical Study of Active Control by Piezoelectric Materials for Fluid–Structure Interaction Problems. COMPDYN, No. 7, Crete, Greece, June, 2019
24. **S. Kaneko**, G. Hong, N. Mitsume, T. Yamada, S. Yoshimura. Finite Element Simulation on Active Control of FSI Phenomena. FEF, Chicago, USA, April, 2019
25. **S. Kaneko**, G. Hong, N. Mitsume, T. Yamada, S. Yoshimura. Development of a stable structure-fluid-electrostatic analysis system. WCCM, No. 13, NewYork, USA, July, 2018
26. S. Yoshimura, **S. Kaneko**, G. Hong, N. Mitsume, T. Yamada. Partitioned Coupling FSI Analyses with Active Control. AFSI, Banff, Canada, May, 2018 **(Invited)**
27. **S. Kaneko**, G. Hong, N. Mitsume, T. Yamada, S. Yoshimura. Development and Validation of FSI Analysis System Considering Active Control. USNCCM, No. 14, Montreal, Canada, July, 2017
28. **S. Kaneko**, G. Hong, N. Mitsume, T. Yamada, S. Yoshimura. Stability of Fluid-Structure Interaction Analysis Considering Active Control. COMPDYN, No. 6, Rhodes Island, Greece, June, 2017
29. **S. Kaneko**, G. Hong, S. Yoshimura, T. Yamada. Integration of FSI Analysis and Active Control. WCCM, No. 12, Seoul, Korea, July, 2016

# Honors

1. Outstanding Presentation Award, In: The 43th JSST Annual International Conference on Simulation Technology
2. Student Presentation Award, In: The 40th JSST Annual International Conference on Simulation Technology (3rd author)
3. School Award, March, 2021
4. School Award, March, 2017