

Tomoharu Suda

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Appointment

- Apr 2023 - Present **RIKEN Center for Sustainable Resource Sciences**
Biofunctional Catalyst Research Team, Postdoctoral Researcher
- Apr 2020 - Mar 2023 **Keio University**
Department of Mathematics, Faculty of Science and Technology
JSPS Postdoctoral Fellow
- Apr 2017 - Mar 2020 **Kyoto University**
Graduate School of Human and Environmental Studies
JSPS Research Fellow, DC1

Education

- Mar 2020 **Kyoto University**
Graduate School of Human and Environmental Studies
Ph. D. in Human and Environmental Studies
Title: *On some methods for the analysis of continuous dynamical systems*
- Mar 2017 **Kyoto University**
Graduate School of Human and Environmental Studies
M. S. in Human and Environmental Studies
- Mar 2015 **Kyoto University**
Faculty of Integrated Human Studies
Bachelor of Integrated Human Studies

Referred Papers

1. **Tomoharu Suda**, On partial maps derived from flows, *Discrete and Continuous Dynamical Systems Series-B* 28(11), 5881-5904 (2023).
2. Saori Suda, **Tomoharu Suda**, Takuya Ohmura and Masatoshi Ichikawa, Motion of a swimming droplet under external perturbations: A model-based approach, *Physical Review E* 106, 034610 (2022).
3. **Tomoharu Suda**, Equivalence of topological dynamics without well-posedness, *Topology and its Applications* 312, 108045 (2022).
4. **Tomoharu Suda**, A categorical view of Poincaré maps and suspension flows, *Dynamical Systems* 37(1), 159-179 (2022).
5. Saori Suda, **Tomoharu Suda**, Takuya Ohmura, and Masatoshi Ichikawa, Straight-to-Curvilinear Motion Transition of a Swimming Droplet Caused by the Susceptibility to Fluctuations, *Physical Review Letters* 127(8), 088005 (2021).
6. **Tomoharu Suda**, Application of Helmholtz-Hodge decomposition to the study of certain vector fields, *Journal of Physics A: Mathematical and Theoretical* 53(37), 375703 (2020).

7. **Tomoharu Suda**, Construction of Lyapunov functions using Helmholtz-Hodge decomposition, *Discrete and Continuous Dynamical Systems* 39(5), 2437-2454 (2019).
8. **Tomoharu Suda** and Takao Morinari, Destruction of Magnetic Long-Range Order by Hole-Induced Skyrmions in Two-Dimensional Heisenberg Model, *Journal of the Physical Society of Japan* 85(11), 114702 (2016).

Proceedings

1. **Tomoharu Suda**, Equivalence of ill-posed dynamical systems, *Archivum Mathematicum* 59(1), 133-140 (2023). Note: peer-reviewed.
2. 須田智晴, Poincaré 写像と suspension の構成の随伴性について (On the adjointness of Poincaré map and suspension flow), 数理解析研究所講究録 2223, 102-107 (2022).
3. 須田智晴, 一意性のない力学系における同値性の概念について (On the notion of equivalence between dynamical systems without uniqueness assumptions), 北海道大学数学講究録 178, 545-551 (2020).
4. 須田智晴, 区分的に連続な右辺を持つ常微分方程式について (On ordinary differential equations with discontinuous right-hand sides), 北海道大学数学講究録 176, 3-9 (2019).

Other Papers

1. 渡邊浩一, 臼田泰如, 寺山慧, 瑞慶覧長空, 須田智晴, 佐野泰之, 学際教育を求めて—Interdisciplinarity の歴史と理論 (In search of interdisciplinary education— history and theory of interdisciplinarity), 学際系学部の教養教育 報告書 105-122 (2017).

Preprints

1. **Tomoharu Suda**, Dynamical properties in the axiomatic theory of ordinary differential equations, arXiv:2303.01199, 2023.
2. **Tomoharu Suda**, A characterization of the Filippov convention, arXiv:1901.06333, 2019.

Books

1. 萩原 広道, 佐野 泰之, 杉谷 和哉, 須田智晴, 谷川 嘉浩, 真鍋 公希, 三升 寛人 編著『〈京大発〉 専門分野の越え方: 対話から生まれる学際探求』 (How to transcend disciplinary borders: search of interdisciplinarity emerging from interaction), ナカニシヤ出版, 2023 年.

Grants

- Oct 2023 - Present **JSPS Grant-in-Aid for Research Activity Start-up**
Dynamical analysis of polynomial vector fields with unknown parameters
¥1,950,000 (Direct cost: ¥1,500,000, Indirect cost: ¥450,000)
- Aug 2023 - Present **RIKEN Intensive Research Projects**
Dynamics of differential inclusions and the chemical reaction networks
¥1,500,000
- Apr 2020 - Mar 2023 **Grant-in-Aid for JSPS Fellows**
Construction of a theory for dynamical systems with discontinuity
¥4,030,000 (Direct cost: ¥3,100,000, Indirect cost: ¥930,000)
- Apr 2017 - Mar 2020 **Grant-in-Aid for JSPS Fellows**
Development of new methods for analysis of continuous dynamical systems
¥1,300,000

Awards

- Saiyushu Kanae Sho, 5th Kyoto University Interdisciplinary Research Idea Contest (a member of the research team)

Teaching Experience

- Oct 2020 - Mar 2023 **Keio University**
Real Analysis II
- Sep 2021 - Mar 2022 **Japan Women's University**
Calculus IV
- Dec 2019 **Kyoto University**
Liberal Arts Education Apprenticeship
- Dec 2018 **Kyoto University**
Visiting Lecture for Manabi Coordinator
How to construct a mathematical model
- Apr 2017 - Mar 2020 **Kyoto University**
Preparing Future Faculty Program *Sojin no mikata*

Service and Professional Affiliations

- **Peer review**
2 times
- **Professional Affiliations**
The Mathematical Society of Japan (Member, Mar 2018-Present)
The Japan Society for Industrial and Applied Mathematics (Member, Apr 2018 -Present)

Other Skills

- **Language**
Japanese, English, Russian (Reading), German (Reading), Italian (Reading), Latin (Reading)

- **Programming Language**
Python, C