

# KENTA TSUKURA

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## RESEARCH INTERESTS

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My research interests are around set theory, logic, and infinitary combinatorics. I am interested in the effects of generic large cardinal properties on combinatorics, and the consistencies of these using forcing method. I am working on the classification of the universe of saturated ideals, by studying the saturation properties of certain ideals. These are based on the philosophy of Gödel's program.

## SKILL

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<b>Language</b>	Japanese (native), English.
<b>Programming Language</b>	OCaml, C, Java, shell script.

## EDUCATION

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PERIOD	<b>2020-4 — 2023-3</b>	
DEGREE	<b>Ph.D. of Science</b>	
COURSE	<b>Mathematics</b>	
UNIVERSITY	<b>University of Tsukuba</b>	Tsukuba, Japan

PERIOD	<b>2018-4 — 2020-3</b>	
DEGREE	<b>Master of Science</b>	
COURSE	<b>Mathematics</b>	
UNIVERSITY	<b>University of Tsukuba</b>	Tsukuba, Japan

PERIOD	<b>2014-4 — 2018-3</b>	
DEGREE	<b>Bachelor of Science</b>	
COURSE	<b>Information Science</b>	
UNIVERSITY	<b>Toho University</b>	Funabashi, Japan

## EMPLOYMENT

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PERIOD	<b>2023-6 — present</b>	
POSITION	<b>Academic Associate</b>	
DEPARTMENT	<b>Industrial &amp; System Engineering</b>	
FACULTY	<b>Science and Engineering</b>	
UNIVERSITY	<b>Hosei University</b>	Koganei, Japan

PERIOD	<b>2023-4 — 2023-5</b>	
POSITION	<b>Postdoctoral Researcher</b>	
DEPARTMENT	<b>Mathematics</b>	
FACULTY	<b>School of Science and Engineering</b>	
UNIVERSITY	<b>University of Tsukuba</b>	Tsukuba, Japan

PERIOD	<b>2020-4 — 2023-3</b>	
POSITION	<b>Research Fellow (JSPS)</b>	
DEPARTMENT	<b>Mathematics</b>	
FACULTY	<b>Graduate School of Science and Technology</b>	
UNIVERSITY	<b>University of Tsukuba</b>	Tsukuba, Japan

## THESIS

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- “Polarized partition relations, Pcf theory, and Prikry-type forcings.” supervised by Masahiro Shioya, Master Thesis for the degree at University of Tsukuba, May 2020.
- “Saturated ideals over higher cardinals” supervised by Masahiro Shioya, Ph.D. Thesis for the degree at University of Tsukuba, May 2023.

## SOCIETY

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- The Mathematical Society of Japan (MSJ), since 2017-4.

## PROJECTS

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- [1] “An applications of Prikry-type forcings to singular cardinal combinatorics”, Grant-in-Aid for JSPS Fellows, No.20J21103, Japan Society for the Promotion of Science(JSPS), 2020-4–2023-3

## AWARD

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- [1] Prize of director of research department of pure and applied science (for master thesis), University of Tsukuba, 2020.
- [2] Exemption from return of class I scholarships, Japan Student Services Organization(JASSO), 2020.

## TEACHING EXPERIENCE

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- Information Science IB (TA, Toho university, 2016–2017).
- Schooling (TA, Toho university, 2016–2017).
- Computer Exercise (TA, University of Tsukuba, 2019, 2021, 2022).
- C Programming Language (Sub Instructor, Hosei university, 2023–)
- Exercise of C Programming Language (Sub Instructor, Hosei university, 2023–)
- Computer Exercise A (Sub Instructor, Hosei university, 2023–).
- Computer Exercise B (Sub Instructor, Hosei university, 2023–).

- Computing Exercise of Management Science B (Sub Instructor, Hosei university, 2023–)
- Linear Algebra I (Instructor, University of Tsukuba, 2023).

## PAPERS

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- [1] “Prikry-type forcing and the set of possible cofinalities”, Kenta Tsukuura, Tsukuba J. of Math., vol.45(2), 83-96, 2021.
- [2] “On the centeredness of saturated ideals”, Kenta Tsukuura, Tsukuba J. Math., vol.47(1), 29-39, 2023.
- [3] “The extent of saturation of induced ideals”, Kenta Tsukuura, Arch. Math. Log., accepted.
- [4] “Prikry-type forcings after collapsing a huge cardinal”, Kenta Tsukuura, submitted, arXiv preprint arXiv:2207.04665.
- [5] “On semiproperness of Namba forcings and ideals in Prikry extensions, submitted.

The following papers are no peer reviewed.

- [1] “Polarized partition on successors of singular cardinals with the GCH”, Kenta Tsukuura, RIMS kokyuroku, 2141, 20-28, 2019.
- [2] “On the centeredness of Kunen’s saturated ideal”, Kenta Tsukuura, RIMS kokyuroku, 2213, 48-53, 2022.
- [3] “Note on lateredness of saturated ideals over successors of singular cardinals”, Kenta Tsukuura, RIMS kokyuroku, 2261, 88–95, 2023.
- [4] Stepping-up semiproperness of Namba forcings, Kenta Tsukuura, RIMS kokyuroku, to appear.

## INVITED TALKS

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- [1] “The quotient of Prikry-type forcings and saturated ideals”, MSJ2023, Tohoku university, 2023.

## SELECTED TALKS

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- [1] “Prikry-type forcing and true cofinal sequence”, Kenta Tsukuura, RIMS workshop Axiomatic set theory and its applications, Kyoto university, 2018.
- [2] “Prikry forcing and universal collapse”, Kenta Tsukuura, Prikry Forcing Online, on Online, 2020.
- [3] “Some saturation properties in quotient forcing”, Kenta Tsukuura, RIMS workshop Recent Developments in Set Theory of the Reals, on Online, 2021.
- [4] “The extent of saturation of induced ideals”, Kenta Tsukuura, MSJ2022, Saitama university, 2022.
- [5] “Huge cardinal and Prikry forcing”, Kenta Tsukuura, MSJ2022, Hokkaido University, 2022.

- [6] “Centeredness of ideals in the extension by Prikry-type forcings”, Kenta Tsukuura, RIMS open symposium New Developments in Forcing and Cardinal Arithmetic, Kyoto University, 2022.
- [7] “The semiproperness of Namba forcings in Prikry-type extensions”, Kenta Tsukuura, RIMS Set Theory Worksyop 2023 Large Cardinals and the Conitnuum, Kyoto University, 2022.