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Curriculum Vitae[1]
Keisuke Hoshino

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Contact details

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Fundings

Education

2023–   Ph.D. course in Division of Mathematics and Mathematical Sciences, Faculty of Science, Kyoto University.

Expected completion : March 2026

Thesis title : *A Homotopy Theory of Algebraic Higher Categories*

Supervisor : Masahito Hasegawa

2021–2023 Master's course in Division of Mathematics and Mathematical Sciences, Faculty of Science, Kyoto University.

Thesis title : *Towards structures of higher dimensional categories*

Supervisor : Masahito Hasegawa

2017–2021 Undergraduate course in Faculty of Science, Kyoto University.

Publications

[1] S. Fujii, K. Hoshino, and Y. Maehara. "ω-weak equivalences between weak ω-categories". In: *Adv. Math.* 480 (2025), Paper No. 110490. ISSN: 0001-8708,1090-2082. DOI: `10.1016/j.aim.2025.110490`. URL: `https://doi.org/10.1016/j.aim.2025.110490`.

[2] K. Hoshino and H. Nasu. "Double categories of relations relative to factorisation systems". In: *Appl. Categ. Structures* 33.2 (2025), Paper No. 11, 70. ISSN: 0927-2852,1572-9095. DOI: `10.1007/s10485-025-09799-y`. URL: `https://doi.org/10.1007/s10485-025-09799-y`.

[3] T. Sanada, K. Hirai, K. Hoshino, and S.-y. Katsumata. "Towards a Neural Network Programming Language with Arrow Handlers Based on Reverse Differential Categories". In: 日本ソフトウェア科学会第 *42* 回大会講演論文集. In Japanese. 日本ソフトウェア科学会. Sept. 2025. URL: `https://jssst.or.jp/files/user/taikai/2025/papers/1a-1-R.pdf`.

[4] S. Fujii, K. Hoshino, and Y. Maehara. "Weakly invertible cells in a weak ω-category". In: *High. Struct.* 8.2 (2024), pp. 386–415. ISSN: 2209-0606. DOI: `10.21136/HS.2024.14`.

Preprints

[1] S. Fujii, K. Hoshino, and Y. Maehara. *ω-equifibrations between strict and weak ω-categories*. 2025. arXiv: `2511.09849 [math.CT]`.

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[1]Last updated: December 6, 2025

Talks

(Invited)

[1]   K. Hoshino and H. Nasu. *Double categories of relations relative to factorisation systems*. Second Virtual Workshop on Double Categories, Online. Oct. 2024.

(non-refereed)

[1]   K. Hoshino. *Bivirtual double categories and localisation of composing cells*. Computer Science and Category Theory (CSCAT2025), Kumamoto, Japan. Mar. 2025.

[2]   K. Hoshino. *Towards Structres of Higher Dimensional Cagegorical Structures*. Computer Science and Category Theory (CSCAT2023), Kyoto, Japan. Mar. 2023.

[3]   K. Hoshino and H. Nasu. *Double categories of relations relative to factorisation systems*. 67th Annual Meeting of the Australian Mathematical Society (AustMS 2023), Brisbane, Australia. Dec. 2023.

[4]   K. Hoshino. *PCAs as algebras over operads*. Computer Science and Category Theory (CSCAT2022), Online. Mar. 2022.

Teaching experiences

2021   Teaching assistant in Faculty of Science, Kyoto University. Tutor for KTGU Faculty Seminar (KTGU 学部セミナー) reading *Introduction to the Theory of Computation* by Sipser, Michael.

2022   Teaching assistant in Faculty of Science, Kyoto University. Tutor for KTGU Faculty Seminar (KTGU 学部セミナー) reading プログラム意味論 *(Program Semantics)* by Yokouchi, Hirofumi.