Haosui Duanmu

PROFESSOR

Institute for Advanced Study in Mathematics, Harbin Institute of Technology

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Education

University of Toronto *Toronto*
PHD STATISTICS *2012 - 2017*
- Advisor: Prof. Jeffrey Rosenthal, Prof. William Weiss, and Prof. Daniel Roy

University of Toronto *Toronto*
MS STATISTICS *2011 - 2012*
- Advisor: Prof. Jeffrey Rosenthal and Prof. William Weiss

University of Toronto *Toronto*
BS UNDERGRADUATE DEGREE IN MATHEMATICS *2007 - 2011*
- Graduate with High Distinction
- Undergrad research advisor: Prof. Franklin Tall

Employment

2022-present	**Professor**, Institute for Advanced Study in Mathematics, Harbin Institute of Technology
2018-2022	**Postdoctoral Fellow**, Department of Economics, University of California, Berkeley

Publications

PUBLISHED

Haosui Duanmu and Aaron Smith. 2024. Nonstandard representation of the Dirichlet form and applications to the comparison theorem. *Mathematische Nachrichten*, 298(4): 1167-1183.

Robert M. Anderson and **Haosui Duanmu**. 2025. Cap-and-trade and Carbon Tax Meet Arrow-Debreu. *Econometrica* (Lead Article), 93(2): 357-393.

Robert M. Anderson, **Haosui Duanmu** and Aaron Smith. 2024. Mixing times and hitting times for general Markov processes. *Israel Journal of Mathematics*, 259(2): 759–834.

Robert M. Anderson, **Haosui Duanmu**, M. Ali Khan and Aniruddha Ghosh. 2024. On existence of Berk-Nash equilibria in misspecified Markov decision processes with infinite spaces. *Journal of Economic Theory*, 217: 30 pages.

Haosui Duanmu, Daniel Roy and Aaron Smith. 2023. Existence of matching priors on compact spaces. *Biometrika*, 110(3): 763–776.

Haosui Duanmu, David Schrittesser and William Weiss. 2023. Loeb extension and Loeb equivalence II. *Fundamenta Mathematicae* 262(1): 71-83.

Robert M. Anderson, **Haosui Duanmu**, M. Ali Khan and Metin Uyanik. 2022. Walrasian equilibrium theory with and without free-disposal: theorems and counterexamples in an infinite-agent context. *Economic Theory*, 73(2-3): 387-412.

Robert M. Anderson, **Haosui Duanmu**, M. Ali Khan and Metin Uyanik. 2022. On abstract economies with an arbitrary set of players and action sets in locally-convex topological vector spaces. *Journal of Mathematical Economics*, 98: 9 pages.

Haosui Duanmu, Jeffrey Rosenthal and William Weiss. 2021. Ergodicity of Markov processes via nonstandard analysis. *Memoirs of the American Mathematical Society*, 273(1342): 114 pages.

Haosui Duanmu and Daniel Roy. 2021. On extended admissible procedures and their nonstandard Bayes risk. *The Annals of Statistics*, 49(4): 2053–2078.

Robert M. Anderson, **Haosui Duanmu** and Aaron Smith. 2021. Mixing and average mixing times for general Markov processes. *Canadian Mathematical Bulletin*, 64(3): 541–552.

Robert M. Anderson, **Haosui Duanmu** and Aaron Smith. 2021. Mixing and hitting times for Gibbs samplers and other non-Feller processes. *Illinois Journal of Mathematics*, 65(3): 547–577.

Robert M. Anderson, **Haosui Duanmu**, David Schrittesser and William Weiss. 2021. Loeb extension and Loeb equivalence. *Proceedings of the American Mathematical Society, Series B*, 8: 112-120.

Haosui Duanmu and William Weiss. 2018. Finitely-additive, countably-additive and internal probability measures. *Commentationes Mathematicae Universitatis Carolinae*, 59(4): 467-485.

Haosui Duanmu, Franklin Tall and Lyubomyr Zdomskyy. 2013. Productively Lindelöf and indestructibly Lindelöf spaces. *Topology and its Applications*, 160(18): 2443-2453.

In Review

Robert Anderson, **Haosui Duanmu**, Ming Xiao and Yahui Zhang. 2025. Unstable Agents in Infinite Matching Markets. *Theoretical Economics*, Under review.

Robert Anderson and **Haosui Duanmu**. 2025. Equilibrium and social norm. *Games and Economic Behavior*, Revise and Resubmit.

In Preparation

Robert Anderson and **Haosui Duanmu**. 2024. The Second Welfare Theorem for Quota Equilibrium. `https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5075138`

Robert Anderson, **Haosui Duanmu**, M. Ali Khan and Metin Uyanik. 2024. Measure-theoretic Production Economies with Externalities and Bads. Draft available upon request.

Robert Anderson and **Haosui Duanmu**. 2025. Pareto Optimality with Externality. Draft available upon request.

Awards, Fellowships, & Grants

2019	**NSERC Postdoctoral Fellowship**, Natural Sciences and Engineering Research Council of Canada	*90,000 CAD*
2021	**Overseas Excellent Young Scientists Fund Program**, National Natural Science Fund	*2 million RMB*
2022	**Young Scientist Fund Program**, National Natural Science Fund	*300,000 RMB*

Teaching Experience

| Winter 2017 | **Nonstandard Analysis**, Instructor, *University of Toronto* |
| Winter 2024 | **Calculus**, Instructor, *Harbin Institute of Technology* |

Mentoring

2022-present	**Tian Luo**, Master Student, Harbin Institute of Technology
2023-present	**Yahui Zhang**, Phd Candidate, Harbin Institute of Technology
2023-present	**Kelun Ma**, Master Student, Harbin Institute of Technology
2024-present	**Xinyu Liu**, Phd Candidate, Harbin Institute of Technology