

SEHYUN JI | Curriculum Vitae

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Research Interest PDEs, Kinetic equations (Boltzmann and Landau equations), nonlocal parabolic/elliptic equations

Education **University of Chicago** Sep 2020 - Jun 2026 (Expected)
Ph.D. in Mathematics
Advisor: Prof. Luis Silvestre

Seoul National University Mar 2014 - Aug 2020
B.S. in Mathematics, Summa cum laude
Thesis : The Evolution of Gauss Curvature Flow
Advisor : Prof. Ki-Ahm Lee

Publication *Dissipation estimates of the Fisher information for the Landau equation*(2024). [arxiv] Submitted.

Bounds for the optimal constant of the Bakry-Émery Γ_2 criterion inequality for RP^{d-1} (2024). [arxiv] Submitted.

Global Existence for an Isotropic Landau Model, with David Bowman (2024). [arxiv]. To appear in SIAM Journal on Mathematical Analysis(SIMA).

Local regularity for the space-homogeneous Landau equation with very soft potentials, with Francois Golse, Cyril Imbert, and Alexis Vasseur. [arxiv] To appear in Journal of Evolution Equations.

Entropy dissipation estimates for the Landau equation with Coulomb potentials. [arxiv] To appear in Kinetic and Related Models.

Awards Amick Fellowship, University of Chicago 2020-2023
The Korean Government Scholarship Program for Study Overseas 2020-2022
The Presidential Science Scholarship (Korea Student Aid Foundation) 2014-2019
University Students Contest of Mathematics (Korea), Gold award 2017, 2019
54th International Mathematical Olympiad, Gold medal 2013

Talks Integro-differential equations in many-particle interacting systems (Upcoming)
• American Institute of Mathematics, Pasadena, California Apr 2025
Workshop on Kinetic Theory and Fluids (Poster, Upcoming)
• University of Wisconsin-Madison Mar 2025
AMS 2025 Spring Southeastern Sectional meeting (Upcoming)
• Clemson University, SC Mar 2025
• Clemson University, SC Mar 2025
Analysis, PDE and Probability(APP) Seminar
• Korea Institute for Advanced Study, Seoul Nov 2024
Analysis Seminar
• University of Texas, Austin May 2024

**Teaching
experience**

Lecturer, University of Chicago

- Math 13100, Elementary Calculus 2 Autumn 2022
- Math 13200, Elementary Calculus 1 Winter 2023
- Math 15100, Calculus 1 Autumn 2023

College Fellow (TA), University of Chicago

- Math 27000, Basic Complex Variables Autumn 2021
- Math 27100, Measure and Integration Winter 2022
- Math 27500, Basic Theory of PDEs Spring 2022

Mentor, University of Chicago

- REU Program Summer 2021
- Directed Reading Program (DRP) Winter 2023, Spring 2024

**Personal
Information**

Citizenship : South Korea
Languages : Korean (Mother tongue), English (Fluent)
Mandatory Military Service : Republic of Korea Air Force Feb 2017 - Feb 2019