

Serin Hong

Personal Information

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Citizenship: South Korea (U.S. permanent resident)

Academic Positions

University of Arizona

Assistant Professor, August 2023 – present

Simons Laufer Mathematical Sciences Institute (SLMath/MSRI)

Simons Bridge Postdoctoral Fellow, August 2022 – July 2023

University of Michigan

Research Fellow, August 2022 – July 2023

Postdoctoral Assistant Professor, September 2018 – July 2022

Education

California Institute of Technology

Ph.D. in Mathematics, June 2018

- Advisor: Elena Mantovan
- Mandatory military service for South Korea, July 2010 – July 2013

M.S. in Mathematics, June 2010 (awarded June 2011)

Stanford University

M.S. in Electrical Engineering, June 2009

B.S. in Mathematics with Honors, June 2008

Awards and Honors

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|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 2025 – 2030 | Simons Travel Support |
| 2022 – 2023 | Simons Bridge Postdoctoral Fellowship |
| 2022 | Early-career AMS-NSF-Simons-ICM Travel Grant (canceled due to the Russo-Ukrainian war) |
| 2021 | Juha Heinonen Award for Excellence in Postdoctoral Teaching |
| 2019 – 2021 | Honored Instructor |
| 2019 | Oberwolfach Leibniz Graduate Students Grant |
| 2018 | Scott Russell Johnson Graduate Dissertation Prize |
| 2016 | Apostol Award for Excellence in Teaching |
| 2014 | Scott Russell Johnson Prize for Excellence in Graduate Research |
| 2010 | Scott Russell Johnson Prize for Excellence in First-Year Graduate Studies |
| 2008 | J. E. Wallace Sterling Award for Scholastic Achievement <i>for the top 25 graduating seniors in the School of Humanities and Sciences</i> |
| 2008 | Highbridge Award for Mathematical Problem Solving |
| 2005 – 2008 | William Lowell Putnam Mathematical Competition <i>Top 25 individuals (2005, 2008), Top 5 teams (2007, 2008)</i> |
| 2004 – 2009 | Samsung Scholarship |
| 2003 | International Mathematical Olympiad <i>Silver Medal</i> |

Publications and Preprints

- [11] *Constructing vector-valued automorphic forms for unitary groups* (with T. Browning, P. Coupek, E. Eischen, C. Frechette, S. Y. Lee, and D. Marcil), submitted
- [10] *On nonemptiness of Newton strata in the B_{dR}^+ -Grassmannian for GSp_{2n}* , preprint.
- [9] *On nonemptiness of Newton strata in the B_{dR}^+ -Grassmannian for GL_n* , Doc. Math. (2024)
- [8] *Extensions of vector bundles on the Fargues-Fontaine curve II*, J. Algebraic Geom. (2025)
- [7] *On certain extensions of vector bundles in p -adic geometry*, Math. Res. Lett. (2023)
- [6] *Classification of subbundles on the Fargues-Fontaine curve*, Algebra & Number Theory. (2021)
- [5] *Classification of quotient bundles on the Fargues-Fontaine curve*, Selecta Math. (2023)
- [4] *Extensions of vector bundles on the Fargues-Fontaine curve* (with C. Birkbeck, T. Feng, D. Hansen, Q. Li, A. Wang, and L. Ye), J. Inst. Math. Jussieu. (2022).
- [3] *Harris-Viehmann conjecture for Hodge-Newton reducible Rapoport-Zink spaces*, J. London Math. Soc. (2018).
- [2] *On the Hodge-Newton filtration for p -divisible groups of Hodge type*, Math. Z. (2019).
- [1] *On Hodge-Newton reducible local Shimura data of Hodge type*, Caltech Ph.D. dissertation (2018).

Conference Talks/Lecture Series

- 2024 *Number Theory Intensive Lecture Series*, Postech, Korea
- 2024 *Southern California Number Theory Day*, UC San Diego, CA
- 2021 *KMS Annual Meeting*, online
- 2021 *SNU Special Lecture Series*, Seoul National University, Korea
- 2021 *PMI Intensive Lecture Series*, Postech, Korea
- 2020 *AMS Sectional Meeting*, Purdue University, IN (canceled due to COVID-19 outbreak)
- 2019 *Upstate Number Theory Conference*, Cornell University, NY (contributed)
- 2018 *Number Theory/Topology Mini Workshop*, KAIST, Korea
- 2016 *West Coast Algebraic Topology Summer School*, University of Oregon, OR (contributed)

Invited Seminar Talks

- 2024 *Colorado State*, FRAGMENT Seminar
- 2024 *Postech*, Number Theory Seminar
- 2023 *Univ. of Arizona*, Algebra and Number Theory Seminar
- 2023 *Univ. of Maryland*, Lie Group and Representation Theory seminar
- 2022 *Caltech*, Number Theory Seminar
- 2022 *Seoul National University*, Number Theory Seminar
- 2022 *Postech*, Number Theory Seminar
- 2022 *Purdue*, Automorphic Form Seminar
- 2021 *Univ. of Arizona*, Algebra and Number Theory Seminar
- 2021 *Postech*, Number Theory Seminar
- 2020 *KIAS*, Number Theory Seminar
- 2020 *Univ. of Michigan*, Group, Lie and Number Theory Seminar
- 2019 *Seoul National University*, Number Theory Seminar
- 2019 *Binghamton*, The Arithmetic Seminar
- 2018 *Univ. of Michigan*, Group, Lie and Number Theory Seminar
- 2017 *Caltech*, Number Theory Seminar
- 2017 *UCLA*, Number Theory Seminar
- 2017 *UC San Diego*, Number Theory Seminar
- 2016 *Caltech*, Number Theory Seminar

Graduate Students Advised

2024 Haris Serdarevic, M.S.
2021 Maxim Melnik, M.S. (joint with Urs Hartl)

Teaching Experience

University of Arizona

Instructor

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| Math 511: Algebra | Fall 2025 – Spring 2026 |
| Math 223: Vector Calculus | Spring 2025 |
| Math 519: Introduction to p -adic Hodge theory | Fall 2024 |
| Math 313: Introduction to Linear Algebra | Fall 2023 – Spring 2024 |

University of Michigan

Instructor

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| Math 215: Multi-variable Calculus | Fall 2020 – Winter 2022 |
| Math 679: Introduction to p -adic Hodge theory | Winter 2020 |
| Math 115: Single-variable Calculus | Fall 2018 – Winter 2020 |

California Institute of Technology

Instructor

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| Math 17: Putnam Problem Solving Seminar | Fall 2015, Fall 2016 |
| Math 7: Number Theory for Beginners | Spring 2016 |

Teaching Assistant

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| ACM 95: Applied Mathematics for the Physical Sciences | Winter 2018 |
| ACM/EE 117: Probability and Random Process | Fall 2017 |
| Math 3: Probability and Statistics | Winter 2014, Winter 2016 |
| Math 7: Number Theory for Beginners | Spring 2015 |
| Math 120: Graduate Algebra | Fall 2014 – Winter 2015 |
| Math 1: Calculus of One and Several Variables | Fall 2009 – Spring 2010 |

Community Services and Outreach Programs

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| 2022 | University of Michigan African Presidential Scholars (UMAPS) |
| 2020 - 2022 | Ann Arbor Community Resources (AACR) |
| 2019 | Postdoctoral Mentorship for graduate students |

Additional Activities

Referee for Compos. Math., Duke Math. Journal, Nagoya Math. Journal, Proc. Amer. Math. Soc.
Reviewer for UKRI Grants
Reviewer for Mathematical Reviews / MathSciNet
Co-organizer for the Arizona Winter School (2024 - present)
Co-organizer for Algebra and Number Theory Seminar at the University of Arizona (2024 - present)
Graduate committee at the University of Arizona (2024 - present)
Colloquium Chair at the University of Arizona (2023 - 2024)
Supervisor for the Number Theory Reading Seminar at the University of Michigan (2021 - 2022)
Co-organizer for the Arithmetic Geometry Learning Seminar at Caltech (2017)
Head coach for the Putnam competition team at Caltech (2015 - 2016)
Tutor/Mentor for a summer camp for mathematically gifted Korean middle school students (2013)

Author of the textbook “Creative Thinking and Mathematics” for Korean middle schools (2013)
Developer of an education program for mathematically gifted Korean middle school students (2012)
Lecturer at the Korean Mathematical Olympiad Summer/Winter School (2004-2005)