

# 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

## Publications and Preprints

- [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  $GL_n$* , submitted.
- [8] *Extensions of vector bundles on the Fargues-Fontaine curve II*, submitted.
- [7] *On certain extensions of vector bundles in  $p$ -adic geometry*, Math. Res. Lett., to appear.
- [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).

## Awards and Honors

- 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  
*for the top 25 graduating seniors in the School of Humanities and Sciences*
- 2008 Highbridge Award for Mathematical Problem Solving
- 2005 – 2008 William Lowell Putnam Mathematical Competition  
*Top 25 individuals (2005, 2008), Top 5 teams (2007, 2008)*
- 2004 – 2009 Samsung Scholarship
- 2003 International Mathematical Olympiad  
*Silver Medal*

## Conference Talks/Lecture Series

- 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

- 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

- 2021 Maxim Melnik, M.S. (joint with Urs Hartl)

## Teaching Experience

### University of Arizona

#### *Instructor*

Math 313: Introduction to Linear Algebra Fall 2023 – Spring 2024

### University of Michigan

#### *Instructor*

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*

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

#### *Teaching Assistant*

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

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 Duke Math. Journal, Nagoya Math. Journal, Proc. Amer. Soc.  
*Reviewer* for Mathematical Reviews / MathSciNet  
*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)