Curriculum Vitae

Hojin KIM

Ph.D. Candidate

Personal Information

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Nationality South Korean

Education

Ph.D. candidate, Mathematical Sciences **KAIST**
Advisor: Bo-Hae Im, Ph.D. **Mar. 2016 – present**
Thesis defense: Dec 2024

AI researcher for alternative civilian service *TmaxData & TmaxAI, Seongnam, South Korea*
2 years of leave of absence during Ph.D. course *Sep. 2018 – Aug. 2020*

M.S. in Mathematical Sciences **KAIST**
Advisor: Suh Hyun Choi, Ph.D. **Mar. 2014 – Feb. 2016**
Thesis: Weil conjectures for elliptic curves

B.S. in Mathematical Sciences **KAIST**
Feb. 2009 – Feb. 2014

Research Interests

Number theory Nature of period polynomials attached to certain modular forms, especially their unimodularity properties; Algebraic structures of the Multiple Zeta Values in positive characteristic.

List of All Publications

Accepted Publications

- *Zagier-Hoffman's conjectures in positive characteristic* (with Bo-Hae Im, Khac Nhuan Le, Tuan Ngo Dac, Lan Huong Pham), to appear in **Forum Math. Pi**. (2024) doi:10.1017/fmp.2024.18
- *On the common zeros of quasi-modular forms for* $\Gamma_0^+(N)$ *of level* $N = 1, 2, 3$ (with Bo-Hae Im, Wonwoong Lee), **Open Math.** 22 (2024), no. 1, 20240065. doi:10.1515/math-2024-0065
- *Note on the Linear Independence of Alternating Multiple Zeta Values in Positive Characteristic* (with Bo-Hae Im, Khac Nhuan Le, Tuan Ngo Dac, Lan Huong Pham), **Acta Math. Vietnam.** (2024), 1–37. doi:10.1007/s40306-024-00554-4
- *Riemann hypothesis for period polynomials attached to the derivatives of L-functions of cusp forms for* $\Gamma_0(N)$ (with Bo-Hae Im), **J. Math. Anal. Appl.** 509 (2022), no. 2, Paper No. 125971. doi:10.1016/j.jmaa.2021.125971

Preprints

- *Zagier-Hoffman's conjectures in positive characteristic II* (with Bo-Hae Im, Khac Nhuan Le, Tuan Ngo Dac, Lan Huong Pham), submitted, 2024
- *Hopf algebras and alternating multiple zeta values in positive characteristic* (with Bo-Hae Im, Khac Nhuan Le, Tuan Ngo Dac, Lan Huong Pham), submitted, 2023
- *Hopf algebras and multiple zeta values in positive characteristic* (with Bo-Hae Im, Khac Nhuan Le, Tuan Ngo Dac, Lan Huong Pham), submitted, 2023

Talks

Nov. 2024 (upcoming)
Hopf algebra structures of Multiple Zeta Values in positive characteristics (tentative).
Workshop, *School and Workshop "Selected topics in Arithmetic Algebraic Geometry"*, October 28 – November 8, Hanoi, Vietnam.

19th Oct. 2022
Riemann hypothesis for period polynomials attached to the derivatives of L-functions of cusp forms for $\Gamma_0(N)$.
Special session on Automorphic Forms and q-Series, *2022 Global KMS International Conference*, October 18 – 21, Seoul, South Korea.

Teaching Experience

Experience of TA for the following courses (underline for the Teaching Assistant Excellence Awards).

Calculus 1 (2015F, 2021S, 2022S, 2023S)

Calculus 2 (2014S, 2016F, 2017F, 2020F, 2021F, 2022F)

Differential Equations and Applications (2016S, 2017S)

Logic and Set Theory (2014F, 2016F)

Introduction to Linear Algebra (2021S)

Linear Algebra (2017S, 2017F, 2020F, 2021F, 2022F)

Introduction to Number Theory (2015S, 2016S, 2022S, 2023S)

Awards and Honors

Teaching Assistant Excellence Award ..... September 2023
Department of Mathematical Sciences, KAIST

Teaching Assistant Excellence Award ..... August 2022
Department of Mathematical Sciences, KAIST

Teaching Assistant Excellence Award ..... July 2021
Department of Mathematical Sciences, KAIST

Bronze Medal, Math Competition for College Students ..... November 2011
Korean Mathematical Society

National Excellence Scholarship (Natural Sciences and Engineering) .... Feb. 2009 – Feb. 2013
National Government of the Republic of Korea

Languages

I speak Korean (native), English (fluent), French and Spanish (basic).

I can code in `Python`, `Java`, `Mathematica`, `SageMath`, and LaTeX.

Updated on October 5, 2024.