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Curriculum Vitae Hojin KIM

Postdoctoral researcher at LMNO, University of Caen Normandy

Personal Information

Postdoc researcher at the LMNO, University of Caen Normandy (mentor: Tuan Ngo Dac)

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Nationality South Korean

Education

Ph.D. in Mathematical Sciences **2025, KAIST**

Advisor: Bo-Hae Im, Ph.D.

Thesis: On arithmetic properties of period polynomials of modular forms

AI researcher for alternative civilian service
2 years of leave of absence during Ph.D. course

TmaxData & TmaxAI, Seongnam, South Korea
Sep. 2018 – Aug. 2020

M.S. in Mathematical Sciences **2016, KAIST**

Advisor: Suh Hyun Choi, Ph.D.

Thesis: Weil conjectures for elliptic curves

B.S. in Mathematical Sciences **2014, KAIST**

Research Interests

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

List of All Publications

Journal Publications

- *Zagier-Hoffman's conjectures in positive characteristic* (with Bo-Hae Im, Khac Nhuan Le, Tuan Ngo Dac, Lan Huong Pham), **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

- *Moment of derivatives of L -functions for two distinct newforms* (with Seokhyun Choi, Beomho Kim, Hansol Kim, Wonwoong Lee), submitted, 2024
- *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. 8, 2024

Hopf algebra structures of Multiple Zeta Values in positive characteristics.

Workshop, *School and Workshop "Selected topics in Arithmetic Algebraic Geometry"*, Oct. 28 – Nov. 8, Hanoi, Vietnam.

Oct. 19, 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*, Oct. 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** Sept. 2023
Department of Mathematical Sciences, KAIST
- Teaching Assistant Excellence Award** Aug. 2022
Department of Mathematical Sciences, KAIST
- Teaching Assistant Excellence Award** July 2021
Department of Mathematical Sciences, KAIST
- Bronze Medal, Math Competition for College Students** Nov. 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 .

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