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🌐 <https://gauss.math.yale.edu/%7Edk929/>
UPDATED: March 29, 2024

RESEARCH INTEREST

Homogeneous dynamics & Hyperbolic geometry

- Discrete subgroups of Lie groups
- Kleinian groups and Anosov representations from a dynamical point of view
- Deformations and Rigidity

Geometric topology & Low-dimensional topology

- Hyperbolic 3-manifolds
- Mapping class groups and dynamics on Teichmüller spaces and Complexes of curves
- Geometric group theory

EDUCATION

- 09/2021 – Present **Yale University**, CT, United States
- Ph.D. in Mathematics (with candidacy since 12/2021)
 - Advisor: Prof. Hee Oh
- 03/2015 – 02/2021 **KAIST – Korea Advanced Institute of Science and Technology**, South Korea
- B.S. in Mathematical Sciences, Advanced Major
 - Graduated with Honors: Salutatorian, Department Valedictorian, Summa Cum Laude
 - Left for mandatory military service (Mar. 2017 – Dec. 2018)
- 03/2013 – 02/2015 **Kangwon Science High School**, South Korea
- Valedictorian, One year early graduation

POSITIONS & VISITING

- 07/2023 – 08/2023 **KIAS – Korea Institute for Advanced Study**, South Korea
- 07/2022 – 08/2022 ◦ Advisor: Prof. Hee Oh
- 06/2019 – 08/2021 **Team for Academic Research on GEometric Topology**, KAIST, South Korea
- Advisor: Prof. Hyungryul Baik
- 06/2019 – 07/2019 **Institute for Advanced Study**, Park City Mathematics Institute, UT, United States
- 2019 Undergraduate Summer School: Quantum Field Theory and Manifold Invariants
- 06/2015 – 08/2015 **University of California, Berkeley**, CA, United States
- Exchange program with \$10,000 funding from KAIST Presidential Fellowship

HONORS & AWARDS

- 07/2021 – Present **Overseas PhD Scholarship**, Korea Foundation for Advanced Studies
- 03/2020 **College of Natural Sciences Dean's List**, College of Natural Sciences, KAIST
- 12/2019 – 08/2020 **3rd Awards for Excellent Undergraduate Reserach**, KAIST
- 06/2019 – 02/2020 **3rd Awards for Excellent Undergraduate Reserach**, KAIST
- 03/2019 – 09/2020 **Undergraduate Scholarship**, Korea Foundation for Advanced Studies
- 03/2015 – 02/2021 **Korea Presidential Science Scholarship**, Korea Student Aid Foundation
- 03/2015 – 02/2021 **KAIST Presidential Fellowship (KPF)**, KAIST

PUBLICATIONS

- [17] Relatively Anosov groups and strong mixing (with Hee Oh),
Preprint

- [16] Patterson-Sullivan measures of Anosov groups are Hausdorff measures (with Subhadip Dey, Hee Oh),
Preprint, Submitted.
- [15] Ergodic dichotomy for subspace flows in higher rank (with Hee Oh, Yahui Wang),
Preprint, Submitted.
- [14] Properly discontinuous actions, growth indicators and conformal measures for transverse subgroups
(with Hee Oh, Yahui Wang),
Preprint, Submitted.
- [13] Non-concentration property of Patterson-Sullivan measures for Anosov subgroups (with Hee Oh),
Preprint, Submitted.
- [12] Conformal measure rigidity for representations via self-joinings (with Hee Oh),
Preprint, Submitted.
- [11] Rigidity of Kleinian groups via self-joinings: measure theoretic criterion (with Hee Oh),
Preprint, Submitted.
- [10] Rigidity of Kleinian groups via self-joinings (with Hee Oh),
Inventiones Mathematicae, Vol 234 (2023), no. 3, 937–948.
- [9] Reducible normal generators for mapping class groups are abundant (with Hyungryul Baik, Chenxi Wu),
To appear in *Journal of Topology and Analysis*
- [8] Hausdorff dimension of directional limit sets for self-joinings of hyperbolic manifolds
(with Yair N. Minsky, Hee Oh),
Journal of Modern Dynamics, Vol. 19 (2023), pp. 433–453.
- [7] Tent property of the growth indicator functions and applications (with Yair N. Minsky, Hee Oh),
Geometriae Dedicata Vol. 218, (2024), no. 1, Paper No.14, 18 pp.
- [6] Minimal asymptotic translation lengths on curve complexes and homology of mapping tori
(with Hyungryul Baik, Chenxi Wu),
To appear in *Michigan Mathematical Journal*
- [5] Linear growth of translation lengths of random isometries on Gromov hyperbolic spaces and Teichmüller
spaces (with Hyungryul Baik, Inhyeok Choi),
To appear in *Journal of the Institute of Mathematics of Jussieu*.
- [4] Simple length spectra as moduli for hyperbolic surfaces and Rigidity of length identities
(with Hyungryul Baik, Inhyeok Choi),
Preprint, Revision sent to *Annales de l'Institut Fourier*.
- [3] On the asymptotic translation lengths on the sphere complexes and the generalized fibered cone
(with Hyungryul Baik, Chenxi Wu),
Preprint, Submitted.
- [2] On the surjectivity of the Symplectic representation of the mapping class group
(with Hyungryul Baik, Inhyeok Choi),
Topology and its Applications, Vol. 322 (2022): 108334.
- [1] Topological entropy of pseudo-Anosov maps from a typical Thurston's construction
(with Hyungryul Baik, Inhyeok Choi),
International Mathematical Research Notices (2022), no.24, 19862–19904.

TALKS

Invited Talks/Lectures:

- [9] 03/04/2024 – Yale Group Actions, Geometry and Dynamics Seminar [[Link](#)]
- [8] 03/10/2023 – Yale Visiting day for Prospective Ph.D. students
- [7] 10/19/2022 – Yale Group Actions, Geometry and Dynamics Seminar [[Link](#)]
- [6] 08/10/2022 – Dynamics seminar at Seoul National University [[Link](#)]
- [5] 08/09/2022 – Dynamics seminar at Seoul National University [[Link](#)]
- [4] 03/11/2022 – Yale Visiting day for Prospective Ph.D. students [[Link](#)]
- [3] 11/02/2021 – CUNY Geometry and Topology Seminar [[Link 1](#), [Link 2](#)]
- [2] 09/21/2021 – Yale Geometry and Topology Seminar [[Link](#)]
- [1] 04/22/2020 – KIAS Virtual Seminar on Geometry and Topology [[Link](#)]

Contributed Talks:

- [6] 04/07/2024 – Workshop on Dynamical systems and related topics at University of Maryland, College Park: in a celebration of Giovanni Forni's 60th birthday
- [5] 01/27/2023 – Graduate Student Seminar at Yale
- [4] 09/23/2022 – Graduate Student Seminar at Yale
- [3] 02/11/2022 – Graduate Student Seminar at Yale
- [2] 09/17/2021 – Graduate Student Seminar at Yale
- [1] 10/30/2020 – Lightning talk at Geometric Group Theory in East Asia

TEACHING

Yale University:

2024 Spring	MATH 115 Calculus of Functions of One Variable II, Instructor
2023 Fall	MATH 302 Vector Analysis and Integration on Manifolds, Grader
2023 Spring	MATH 435 Differential Geometry, Grader
2023 Spring	MATH 244 Discrete Mathematics, TA
2022 Fall	MATH 302 Vector Analysis and Integration on Manifolds, Grader
2022 Fall	MATH 120 Calculus of Functions of Several Variables, Coach

KAIST:

2020 Fall	MAS102 Calculus II, Tutor for Freshmen
2020 Spring	MAS101 Calculus I, Tutor for Freshmen
2019 Fall	MAS102 Calculus II, Tutor for Freshmen

SERVICES

- 02/2024 **Article in Horizon**, a scientific magazine published by KIAS
 ◦ An article about rigidity theory of Kleinian groups [[Link](#)] (in Korean)
- 12/2023 **Article in Horizon**, a scientific magazine published by KIAS
 ◦ An article about rigidity theory of Kleinian groups [[Link](#)] (in Korean)
- 10/2023 **Article in Horizon**, a scientific magazine published by KIAS
 ◦ An article about rigidity theory of Kleinian groups [[Link](#)] (in Korean)
- 09/2022 – 12/2022 **Yale Graduate Students Seminars**
 ◦ Organizer
- 06/2022 – 05/2023 **Yale Korean Graduate Student Association (KGSA)**
 ◦ President
- 08/2021 – 06/2022 **Yale Korean Graduate Student Association (KGSA)**
 ◦ Treasurer
- 08/2017 – 11/2017 **Sciencebooks Publisher**, Minumsa publishing group
 ◦ Proofreader for Korean Translation of I. Stewart, *In Pursuit of the Unknown: 17 Equations That Changed the World*
- 03/2017 – 12/2018 **Republic of Korea Army**
 ◦ Mandatory military service, Sentinel & Programmer
- 03/2016 – 12/2016 **Notices of the KAIST College of Natural Sciences**
 ◦ Editor, Student Reporter
- 02/2016 – 06/2021 **KAIST Undergraduate Math Colloquium**
 ◦ Advisor (Sep. 2020 – Jun. 2021)
 ◦ Chief Organizer (Aug. 2019 – Aug. 2020)
 ◦ Organizer, Poster and Homepage manager (Feb. 2016 – Aug. 2019)
- 01/2016 – 01/2017 **KAIST Presidential Fellowship Student Society**
 ◦ Student President