Minsung Kim

CONTACT INFORMATION

Centro di Ricerca Matematica Ennio De Giorgi
Scuola Normale Superiore

Piazza dei Cavalieri, 3 **minsung.kim@sns.it**
Pisa PI 56100, Italy

RESEARCH INTERESTS

Smooth ergodic theory / Parabolic dynamics and its connections with probability, geometry and representation theory / Random walks and its applications.

ACADEMIC APPOINTMENT

Scuola Normale Superiore, Pisa, Italy.

- Junior visitor in Centro Ennio De Giorgi. Oct. 2022 - present.
  (Mentor: Professor. Stefano Marmi.)

Nicolaus Copernicus University, Toruń, Poland.

- Research associate. Jan. 2021 - Sep. 2022.
  (Mentor: Professor. Krzysztof Frączek.)

EDUCATION

Ph.D. Mathematics, University of Maryland - College Park. Dec. 2020

- Advisor: Professor. Giovanni Forni.
- Visiting doctorant, Institut de Mathematiques de Jussieu - Paris Rive Gauche.
  Oct 2017 - Aug 2018, Jan 2019 - June 2019.

M.S. Mathematics, North Carolina State University. May 2013
(Advisor: Professor. Robert H. Martin, Jr.)

B.S. Mathematics education, Pusan National University. Aug 2011
(Advisor: Professor. Jae Keol Park.)

Exchange student, University of Hawaii at Hilo, Mathematics. Fall 2009 - Spring 2010

PUBLICATIONS AND PREPRINTS

1. Limit theorem for higher rank action on Heisenberg manifolds.
Discrete and Continuous Dynamical Systems, Vol. 42, No. 9, September 2022

2. Effective equidistribution for generalized higher step nilflows.
Ergodic Theory and Dynamical Systems, 42(12), 3656-3715, December 2022

3. New phenomena for deviation of Birkhoff integrals for locally Hamiltonian flows.
(with Krzysztof Frączek) arXiv:2112.13030
Accepted in Journal für die reine und angewandte Mathematik (Crelle's Journal)

4. Solving the cohomological equation for locally Hamiltonian flows, part I - local obstructions. (with Krzysztof Frączek) arXiv:2305.16884

5. Solving the cohomological equation for locally Hamiltonian flows, part II - global obstructions. (with Krzysztof Frączek) arXiv:2306.02340

6. Anisotropic spaces and automorphisms of nilmanifolds. (with Oliver Butterley) arXiv:2308.06630

Seminar and Conference talks

Mini-workshop on *Group actions and rigidity theory*, Nankai University — Oct 2023
Conference, *Regular and Stochastic Behaviour in Dynamical Systems*, CRM — June 2023
Short talk in conference, *Anosov Dynamics*, CIRM, Luminy, France — Apr 2023
Geometry seminar, IBS-Center for Geometry and Physics, Pohang, Korea — Jan 2023

Ergodic theory seminar, Nicolaus Copernicus University, Toruń, Poland — Dec 2022
Special seminar for new junior visitors, Scuola Normale Superiore, Pisa — Nov 2022
Zoominar in Dynamical Systems at Porto, Portugal — June 2022
Ergodic theory and Dynamical systems, POSTECH, Pohang, Korea — May 2022
Dynamics seminar, Centro De Giorgi(Sculola Normale Superiore), Pisa — Apr 2022
Dynamics seminar, IMPAN(Polish Academy of Sciences), Warsaw, Poland — Mar 2022

Probability seminar, IMPAN(Polish Academy of Sciences), Sopot, Poland — Nov 2021
Analysis seminar, Saitama University, Saitama, Japan — Oct 2021
Ergodic theory and Dynamical systems, POSTECH, Pohang, Korea — Sep 2021
Seminar in Ergodic theory and Dynamical systems, KIAS, Seoul, Korea — Aug 2021
Ergodic theory and Dynamical systems, Nicolaus Copernicus University — Mar 2021
(2 talks) Toruń, Poland — Feb 2021

Workshop in Dynamical Systems and Related Topics, Penn State University — Sep 2019

Fellowships

Grant for experienced researchers from abroad, Nicolaus Copernicus University. — 2021
Excellence Center 'Dynamics, Analysis and Artificial Intelligence'.
Dean's Fellowship, University of Maryland. — 2013-14
Scholarship for National Undergraduate in Science/Technology, Korea Student Aid Foundation, 4 years - full tuition covered.

Teaching Experience

Teaching Assistant. UMCP.

- Sole Contact Instructor
  - *Introduction to Probability (MATH 111)* — Spring 2014
- Discussion Leader
  - *Calculus II (MATH 141)* — Fall 2014, Spring 2015
  - *Differential Equations for Scientists and Engineers (MATH 246)* — Sp 2016,20
  - *Calculus for Life Sciences II (MATH 131)* — Spring 2017
  - *Calculus III (MATH 241)* — Fall 2018, 2019, 2020
- Grader

  Advanced Calculus 1,2 (MATH 410, 411), Introduction to Dynamics and Chaos (MATH 452), Introduction to Topology (MATH 432), Differential Forms and Their Applications (MATH 437), Real Analysis I (MATH 630), Dynamical systems I* (MATH 642), Differential Geometry* (MATH 740)* — * for grad course.
- Directed Reading Program Mentor

  Rebecca Hsu, Riemann mapping Theorem. — Summer 2014

Lecture Assistant. NCSU.

- Instructor
  - *Contemporary Mathematics (MA 103)* — Summer II 2012
- Grader
  - *Introduction to Finite Mathematics with Applications (MA 114)* — Spring 2013
  - *Calculus for Life and Management Sciences (MA 231)* — Fall 2012

Academic research visits	Chern Institute of Mathematics, Nankai University, Tianjin, China (Host: Changguang Dong)	Jan 7-13, 2024
	Leiden University, Leiden, Netherland, (Host: Dalia Terhesiu)	Nov 26-Dec 3, 2023
	Nicolaus Copernicus University, Toruń, Poland (Host: Krzysztof Frączek)	Dec 3-11, 2022, Aug 18-Sep.1, 2023
	Universita di Roma (Tor Vergata), Rome, (Host: Oliver Butterley)	June 12-19, 2022

Experience	Organizer, seminari di Sistemi Dinamici, Scuola Normale Superiore - Uni.Pisa	2023
	Student Dynamics Seminar Organizer, University of Maryland	Fall 2015 - Fall 2016
	Math tutor, University of Hawaii at Hilo	Fall 2009 - Spring 2010
	Republic of Korea Army, completion of military service	July 2006 - July 2008

Language	Korean (native), English (fluent), French, Italian (elementary), Polish (beginner)