## 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 number theory, 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 - Août 2018, Jan 2019 - Juin 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.)

**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

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**

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

## 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

## Experience

Organizer, seminari di Sistemi Dinamici, Scuola Normale Superiore - Uni.Pisa 2023
Student Dynamics Seminar Organizer, University of Maryland Fall 2015 - Fall 2016
University of Hawaii at Hilo, Exchange student, Mathematics. 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)