

Dongho Lee

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Research Interests

Symplectic Geometry, Symplectic Dynamics, Reeb Dynamics, Three-body Problem

Education

Ph.D. in Mathematics

Department of Mathematics, Seoul National University, Seoul, Korea Mar 2018 – Feb 2025

Bachelor of Science in Mathematics

Bachelor of Economics in Economics, Minor in Physics

College of Liberal Studies, Seoul National University, Seoul, Korea Mar 2013 – Feb 2018
 Graduated with Honors

Research Experience

Postdoctoral Researcher

Research Institute of Mathematics, Seoul National University Mar 2025 – Present
 Postdoctoral Supervisor: Prof. Cheol-hyun Cho
 – Research on periodic orbits in the three-body problem via symplectic geometry.

Graduate Student Researcher

Department of Mathematics, Seoul National University Mar 2018 – Feb 2025
 Ph.D Advisor: Prof. Otto van Koert
 – Focus on global hypersurfaces of section and the three-body problem in symplectic and contact geometry.

Manuscripts and Publications

- Fiberwise Convexity of Restricted Three-body Problem** (Manuscript)
 with Sunghae Cho and Beomjun Sohn In preparation
 – Investigating fiberwise convexity in the restricted three-body problem, relating it to spatial periodic orbits.
- Global Hypersurfaces of Section and the Spatial Kepler Problem**
 Advisor: Prof. Otto van Koert Ph.D. Thesis, Dec 2024
 – Demonstrated existence of global hypersurfaces of section for certain Hamiltonian systems.
 – Provided simplified descriptions of the moduli space of periodic orbits in the rotating Kepler problem and computed Conley-Zehnder indices.
- Global Hypersurfaces of Section for Geodesic Flows on Convex Hypersurfaces**
 with Sunghae Cho *Archiv der Mathematik*, 31 Jul 2024
 – Constructed a global hypersurface of section for geodesic flows on convex hypersurfaces with isometric involution, generalizing Birkhoff annuli to higher dimensions.

Presentations

1. **Closed orbits of the spatial rotating Kepler problem** (Scheduled)
2025 Korean Mathematical Society Spring Meeting, Daejeon, Korea 24 – 26 Apr 2025

Personal Affiliations

- Korean Mathematical Society**, Korea 2025 – Present
- QSMS-BK21 Symplectic Seminar**, Korea 2021 – Present

Conference Participation

- 2025 Symplectic Retreat** 23 – 26 Jan 2025
Stanford Hotel, Tongyeong, Korea
- From Hamiltonian Dynamics to Symplectic Topology and Beyond** 3 – 7 Jun 2024
A 2024 celebration of Claude Viterbo and his mathematics
Institut Henri Poincaré, Paris, France
- Topology of 4-manifolds and Related Topics** 21 – 27 Jan 2024
A conference in honor of Jongil Park's 60th birthday
Ocean Suites Hotel, Jeju, Korea
- East Asian Symplectic Conference 2023** 29 Oct – 4 Nov 2023
Ocean Suites Hotel, Jeju, Korea
- QSMS Workshop on Symplectic Geometry and Related Topics** 5 – 10 Feb 2023
Ocean Suites Hotel, Jeju, Korea
- Workshop on Symplectic Dynamics** 27 Jun – 1 Jul 2022
Instituto Superior Técnico, Lisboa, Portugal
- Symplectic Geometry and Beyond (Part I)** 7 – 10 Feb 2022
Conference on the occasion of Yong-Geun Oh's 61st birthday
Ocean Suite Hotel, Jeju, Korea
- Fukaya 60 Geometry and Everything** 17 – 22 Feb 2019
A conference in honor of Kenji Fukaya's 60th birthday
Kyoto University, Kyoto, Japan

Teaching Experience

Teaching and Course Assistant, Seoul National University Mar 2018 – Feb 2025

Major Courses

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|---|--------------------------|
| Algebraic Topology (Graduate Course) | Fall 2019 |
| Introduction to Topology | Spring 2023, Spring 2020 |
| Introduction to Differential Geometry | Spring, Fall 2021 |
| Selected Topics Seminar (College of Liberal Studies) | Spring 2023 |
| Probability in mathematical and philosophical viewpoints | |

General Education Courses

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|---|---|
| Head Teaching Assistant for Introductory Mathematics Courses | Spring 2020 |
| Assisted in course planning and exam preparation | |
| Engineering Mathematics | Fall 2024, Fall, Summer, Spring 2023, Fall 2020 |
| Calculus for Life Science | Fall 2022, Spring 2021 |
| Fundamentals and Applications of Mathematics | Spring 2022 |
| Calculus course for liberal arts students | |
| Calculus Practice | Fall, Spring 2018 |
| Calculus | Fall, Spring 2018 |

Awards and Honors

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| Merit-based Scholarship , Department of Mathematics, Seoul National University | 2018 |
| National Scholarship , Korean Student Aid Foundation | 2015 |
| Merit-based Scholarship , College of Liberal Studies, Seoul National University | 2013 |

References

Prof. Otto van Koert
 Department of Mathematics, Seoul National University
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 Relationship: Ph.D. Advisor

Prof. Cheol-hyun Cho
 Department of Mathematics, Seoul National University
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 Relationship: Postdoctoral Advisor