

# Dongho Lee

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## Research Interests

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

## Education

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### 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

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### 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

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- 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**

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

## **Personal Affiliations**

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| <b>Korean Mathematical Society</b> , Korea  | 2025 – Present |
| <b>QSMS-BK21 Symplectic Seminar</b> , Korea | 2021 – Present |

## **Conference Participation**

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

## Teaching Experience

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

### Major Courses

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

### General Education Courses

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

## Awards and Honors

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

## References

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Prof. Otto van Koert  
 Department of Mathematics, Seoul National University  
 okoert@snu.ac.kr  
 Relationship: Ph.D. Advisor

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