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, SNU   Mar 2013 – Feb 2018
Graduated with Honors

Research Experience

Postdoctoral Researcher
Center for Quantum Structures in Modules and Spaces (QSMS), SNU   May 2025 – Present

 – Research on three-body problem and related topics.

Research Institute of Mathematics, SNU   Mar 2025 – Apr 2025
  Postdoctoral Supervisor: Prof. Cheol-hyun Cho

 – Research on periodic orbits in the three-body problem via symplectic geometry.

Graduate Student Researcher
Department of Mathematics, SNU   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.

Publications

1. **Conley-Zehnder Indices of Spatial Rotating Kepler Problem**   arXiv Preprint
 – Description of the moduli space and computing the Conley-Zehnder indices of periodic
   orbits of spatial rotating Kepler problem.

2. **Global Hypersurfaces of Section and the Spatial Kepler Problem**
   Advisor: Prof. Otto van Koert   Ph.D. Thesis, Dec 2024

3. **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.

Last Update: 21 August 2025

Presentations

Sildes are available at my homepage.

1. **Three-body Problem and Related Problems**
   QSMS 2025 Summer Workshop, Goseong, Korea   20–23 Aug 2025

2. **Periodic Orbits of Rotating Kepler Problem**
   Billiards and Quantitative Symplectic Geometry, Heldelberg, Germany   14 – 18 Jul 2025

3. **Closed orbits of the spatial rotating Kepler problem**
   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

    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

    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

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
`okoert@snu.ac.kr`
Relationship: Ph.D. Advisor

Prof. Cheol-hyun Cho
Department of Mathematics, POSTECH
`chocheol@postech.ac.kr`
Relationship: Postdoctoral Supervisor