Ikhan Choi

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Education

Pohang Institute of Science and Technology (POSTECH) Mar 2016 – Aug 2022
B.S. in Mathematics
Major GPA: 3.93/4.30 (3.82/4.00) Overall GPA: 3.77/4.30 (3.67/4.00)
Early graduation: leave of absence for three years including military service

Seoul Science High School Mar 2013 – Feb 2016
Specialized high school for gifted students

Research Interests

Operator Algebra, Mathematical Physics, Abstract Harmonic Analysis, Topological Quantum Groups.

Publications

I. Choi, *Curved folding and planar cutting of simple closed curve on a conical origami*
Kodai Math., 39-3 (2016), pp. 579-595.
Suggested a problem, in terms of classical differential geometry, of determining whether a closed curve on a plane can be realized as the intersection of a piecewise smooth isometric immersion of the plane and another plane embedded in $\mathbb{R}^3$.

Academic Experiences

Senior thesis, POSTECH Spring 2022
Title: *Three perspectives on Bochner's theorem: from Herglotz representation to Pontryagin duality*
Advisor: *Younghwan Son*
Investigted Bochner's theorem from three different viewpoints; complex analysis, probability theory, and representation theory using GNS construction. As an application, proved the Pontryagin duality theorem.

Undergraduate Research Program, POSTECH Fall 2019
Title: *Global Existence of the Vlasov-Poisson System*
Advisor: *Donghyun Lee*
Proved the local existence of the Vlasov-Poisson system and reviewed Schaeffer's paper on the global existence.

IBS-CGP Mathematics Festival (Research Experience Program), POSTECH Aug 2018
Topic: *Variations on a Theme: On the Dispersion of Waves*
Advisor: *Sung-Jin Oh*

Teaching Experiences

Student Mentoring Program
Mentor: MATH 423 Introduction to Differential Geometry Fall 2019
Covered the theory of space curves and surfaces, introduction to smooth manifolds, covariant derivatives, and the Riemannian curvature tensor.

Awards and Honors

Japanese Government (**MEXT**) Scholarship Apr 2023 (expected) – Now
Embassy recommendation, Research students

Gold Prize in 38th Mathematics Competition for University Students in Korea Nov 2019
1st group for math majors
Sponsored by Korean Mathematics Society

Talks

POSTECH – KAIST – UNIST Undergraduate Math Club Joint Seminar — Aug 2019

Title: *Diachrony of Spectra*

Focusing on the word "spectrum", followed the history of how mathematical languages are created in the interdisciplinary study of physics, analysis, and geometry.

POSTECH Undergraduate Mathematics Seminar — Nov 2018

Title: *Dispersion for the Schrödinger Equation*

Proved the dispersive inequality for the Schrödinger equation, using the theory of Fourier transforms and oscillatory integrals.

Work Experience

Military Service — Jan 2020 – July 2021

1st Marine Division Band, Republic of Korea Marine Corps

Military Musician

Summer Experience Society (Internship Program in POSTECH) — Jun 2019 – Aug 2019

Persona AI Co., Ltd.

R&D on Natural Language Processing (Chatbot development)

Implemented probabilistic graphical models, attention model, and sentiment analyzer.

Other Skills and Qualifications

Language: English (fluent), Japanese (fluent), Korean (native)

Passed: General Qualifying Examination for Ph.D. Program of POSTECH in Mathematics