Curriculum Vitae - Dyne Kim

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I Research Interests  
1. Geometric Analysis  
My primary research interest lies in geometric analysis. This attractive branch of mathematics is based on the intricate interplay between differential geometry and analysis, and my interest in both geometry and analysis led to an interest in the intersection of two fields. I have focused my studies on curve shortening flow (CSF) and its variants, and I am currently working on my master's thesis which explores the Łojasiewicz inequality of area-preserving curve shortening flow (APCSF).

2. Complex Geometry  
My second research interest lies in complex geometry, another field that thrives on the interplay between algebraic geometry and complex analysis. I built my foundation in both algebraic and complex geometries through several textbooks, and now I'm delving into the works of Kunihiko Kodaira, the preeminent complex geometer, to broaden my perspective on the discipline.

II Education  
1. Master of Science, Mathematics Major  
August 2025 (Scheduled), Korea Advanced Institute of Science and Technology (KAIST)  
Cumulative GPA: 4.13/4.3

2. Bachelor of Science, Mathematics and Physics Double Major  
February 2024, Korea Advanced Institute of Science and Technology (KAIST)  
Cumulative GPA: 3.87/4.3

3. Highschool Graduate  
February 2021, Seoul Science Highschool, Seoul, South Korea  
Cumulative GPA: 4.12/4.3

III Research Experience   
1. Łojasiewicz Inequality of Area-Preserving Curve Shortening Flow (2024, Master’s Advisor: Jiewon Park)  
2. Castelnuovo Genus Bound of Projective Curves (2023, Advisor: Jinhyung Park)  
3. Strichartz Estimate of Schrödinger Equation (2022, Advisor: Soonsik Kwon)

IV Awards and Funding  
1. Korea Physics Olympiad (KPhO)  
Attended KPhO Winter School 2020, One of the 12 Final Candidates of International Physics Olympiad (IPhO) 2020 Korean national team

2. Korea Mathematics Olympiad (KMO)  
KMO 2017 Gold Prize, in Junior High Department, Attended KMO Winter School 2018

3. Young-han Kim Global Leader Scholarship (given by KAIST)

V Extracurricular Activities  
1. Translation  
I've translated several mathematics textbooks into Korean language using LaTeX, in order to study them and contribute to the Korean mathematics student community.   
  
2024 O. A. Ladyženskaja, et al. – Linear and Quasi-linear Equations of Parabolic Type (AMS) (Now Translating)  
2024 John M. Lee – Introduction to Complex Manifolds (AMS) (Now Translating)  
2024 Daniel Huybrechts – Complex Geometry (Springer) (Not Complete; Chapters 1~3)  
2024 John M. Lee – Introduction to Riemannain Geometry (Springer, GTM 176)  
2023 Charles A. Weibel – Homological Algebra (Cambridge) (Not Complete; Chapters 2, 4~5)  
2023 Peter J. Freyd – Abelian Categories (Harper and Row)  
2023 David Gilbarg, Neil S. Trudinger – Elliptic Partial Differential Equations of Second Order (Springer) (Not Complete; Chapters 2~5, 9~11)  
2023 Lawrence C. Evans – Partial Differential Equations (AMS) (Not Complete; Chapters 2, 5, 7~11)  
2023 Daniel A. Marcus – Number Fields (Springer) (Not Complete; Chapters 1~5)  
2022 Terence Tao – Nonlinear Dispersive Equations (AMS) (Not Complete; Chapters 1~3)  
2022 Robin Hartshorne – Algebraic Geometry (Springer, GTM 52)  
2022 James E. Humphreys – Linear Algebraic Groups (Springer, GTM 21)  
2022 Glen E. Bredon - Topology and Geometry (Springer, GTM 139) (Not Complete; Chapters 1~6)  
2021 John M. Lee – Introduction to Smooth Manifolds (Springer, GTM 218) (Not Complete; Chapters 1~8)  
2021 John M. Lee – Introduction to Topological Manifolds (Springer, GTM 202) (Not Complete; Chapters 5~12)  
2021 Thomas W. Hungerford – Algebra (Springer, GTM 73)  
2020 H. Grauert, K. Fritzsche – Several Complex Variables (Springer, GTM 38) (Not Complete; Chapters 1~2)  
2020 Walter Rudin – Functional Analysis (McGraw Hill)  
2020 Thomas Jech – Set Theory (Springer) (Not Complete; Chapters 1~8)  
2019 John L. Kelley – General Topology (Springer, GTM 27)  
2019 Walter Rudin – Real and Complex Analysis (McGraw Hill)  
2018 Walter Rudin – Principles of Mathematical Analysis (McGraw Hill)

2. Seminars  
2024 Introduction to General Relativity for Mathematics Students  
2024 Several Complex Variables and Introduction to Complex Geometry  
2023 Introduction to Sheaf Theory and Sheaf Cohomology  
2023 Embeddings in Projective Space  
2023 Scheme Theory - Comparison with Varieties  
2022 Introduction to Functional Analysis and Distribution Theory

3. Articles  
“Math Letter” is a bi-monthly mathematics magazine published by KAIST Mathematics Problem Solving Group.  
Separation Axioms and Spaces I: Separation of Points by Neighborhoods  
Separation Axioms and Spaces II: Separation of Sets by Neighborhoods  
Separation Axioms and Spaces III: Separation by Functions  
Separation Axioms and Spaces IV: Applications of Separation Spaces  
Invariance of Domain  
Filters and Nets

4. Teaching Experiences  
2024 Calculus II course TA  
2023 Delivered a lecture on Functional Analysis to fellow undergraduate students  
2021 Delivered a lecture on Lebesgue Integral Theory and Introductory Complex Analysis to highschool juniors