Yeonsu Chang

Integrated Ph.D Candidate

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Graph Theory | Structural Graph Theory | Parameterized Complexity | Reduced Parameter

Research Statement

My research focuses on structural aspects of graphs and related width parameters, with emphasis on characterizations and algorithmic consequences in parameterized complexity.

Education

Integrated Ph.D in Mathematics Mar 2022 – Present

Hanyang University, Seoul, South Korea
Advisor: O-joung Kwon

B.S. in Mathematics Mar 2015 – Feb 2022

Hanyang University, Seoul, South Korea (incl. two years of military service)

Military Service

Republic of Korea Army Jan 2017 – Oct 2018

Completed mandatory military service (Sergeant)

Journal Papers

2. Yeonsu Chang, O-joung Kwon, and Myounghwan Lee. **A new width parameter of graphs based on edge cuts: α-edge-crossing width**, *Discrete Applied Mathematics* 380 (Feb, 2026), *WG23 accepted*, arXiv:2302.04624

1. Yeonsu Chang, Sejin Ko, O-joung Kwon, and Myounghwan Lee. **A characterization of graphs of radius-r flip-width at most 2**, *Discrete Mathematics* 348(4) (Apr, 2025), 114366 arXiv:2306.15206

Refereed Conference Papers without Journal Version

1. Shinwoo An, Yeonsu Chang, Kyungjin Cho, O-joung Kwon, Myounghwan Lee, Eunjin Oh, and Hyeonjun Shin. **Pre-assignment problem for unique minimum vertex cover on bounded clique-width graphs**, *AAAI2025 accepted*, arXiv:2408.09591

Preprints

1. Shenwei Huang, Yidong Zhou, and Yeonsu Chang. **The optimal chromatic bound for even-hole-free graphs without induced seven-vertex paths**, arXiv:2602.04403

Talks

Korean Student Combinatorics Workshop 2026 Winter (KSCW2026W) Feb 2–6, 2026

Structural and Algorithmic properties of Reduced Component Max-Leaf

2025 KMS Annual Meeting Oct 22–24, 2025

Structural and Algorithmic properties of Reduced Component Max-Leaf

Math Colloquium at Hanyang University Nov 4, 2024

Combinatorial game and graph structure: cops and robber game and flipper game

2023 KMS Annual Meeting Oct 26–28, 2023

A characterization of graphs of radius-r flip-width at most 2

Teaching Experiences

Linear Algebra 1, Hanyang University	Spring 2025
Math Capstone PBL (Solving Graph Problems), Hanyang University	Fall 2024
Linear Algebra 1, Differential Geometry, Hanyang University	Spring 2024
Head TA, Hanyang University	Fall 2022 – Spring 2024
Math Capstone PBL (Applications of graph algorithms), Hanyang University	Fall 2022
Linear Algebra 1, Hanyang University	Spring 2022

Recent Directions

- Reduced parameter
- Chiboundedness
- Characterization of graph classes