Seonghyuk Im
Graduate student at KAIST
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Current Position

- **KAIST** Daejeon, South Korea
  Integrated master's/doctoral program *2021-Current*
  – Advised by Jaehoon Kim and Hong Liu.

Education

- **KAIST** Daejeon, South Korea
  B.S., Mathematics *2016-2020*
  – Advised by Yong Jung Kim.

Preprints

- Dirac's theorem for linear hypergraphs (with Hyunwoo Lee), arXiv:2403.14269
- Graph with any rational density and no rich subsets of linear size (with Suyun Jiang, Hong Liu, and Tuan Tran), arXiv:2402.13825
- On rainbow Turán Densities of Trees (with Jaehoon Kim, Hyunwoo Lee, and Haesong Seo), arXiv:2312.15956
- A bandwidth theorem for graph transversals (with Debsoumya Chakraborti, Jaehoon Kim, and Hong Liu), arXiv:2302.09637
- A proof of the Elliott-Rödl conjecture on hypertrees in Steiner triple systems (with Jaehoom Kim, Joonkyong Lee, and Abhishek Methuku), arXiv:2208.10370
- The proper conflict-free k-coloring problem and the odd k-coloring problem are NP-complete on bipartite graphs (with Jungho Ahn and Sang-il Oum), arXiv:2208.08330
- Crux, space constraints and subdivisions (with Jaehoon Kim, Younjin Kim, and Hong Liu), arXiv:2207.06653. An extended abstract appears in EUROCOMB23
- Complexity of Partitioning Hypergraphs, arXiv:1812.09206 (decided not to publish)

To appear

Published

- On the mean square displacement of a random walk on a graph (with Hwidong Kim, Jiho Maeng, Jihwan Yu, Yongwook Cha, and Seong-HunPaeng) *European Journal of Combinatorics* 51 (2016): 227-235, link

Talks

- 9th European Congress of Mathematics(ECM) - CS-15: 04. Combinatorics and Discrete Mathematics (II)
  July 16, 2024
  Graph with any rational density and no rich subsets of linear size (site)
- Summit280
  July 11, 2024
  Dirac's theorem for linear hypergraphs (site)
- 30th British Combinatorial Conference(BCC)
  July 3, 2024
  Dirac's theorem for linear hypergraphs (site)
- 31st KIAS combinatorics workshop
  June 1, 2024
  Dirac's theorem for linear hypergraphs (site)
- 2024 KMS spring meeting
  April 19, 2024
  On rainbow Turán densities of trees (site)
- Yeungnam University
  March 18, 2024
  Graph with any rational density and no rich subsets of linear size (site)
- 2023 European Conference on Combinatorics, Graph Theory and Applications (EUROCOMB'23)
  August 31, 2023
  Crux, space constraints and subdivisions (Extended abstract)
- 2023 KMS Spring Meeting - Special Section: Extremal Combinatorics: Methods and Applications
  April 29, 2023
  A bandwidth theorem for graph transversals (site)
- Shandong University
  March 30, 2023
  A bandwidth theorem for graph transversals (Bilibili)
- IBS Discrite Math Seminar
  November 29, 2022
  A proof of the Elliott-Rödl conjecture on hypertrees in Steiner triple systems (Youtube)
- KAIST Math Graduate student Seminar (KMGS)
  Novembeer 3, 2022
  Large clique subdivisions in graphs without small dense subgraphs (site)
- 2021 Combinatorics Workshop
  December 21, 2021
  Large clique subdivisions in graphs without small dense subgraphs (Youtube)

- IBS Discrete Math Seminar
  November 30, 2021
  Large clique subdivisions in graphs without small dense subgraphs (Youtube)

Competitive Programming

2018 Kakao Code Festival 5th prize(30th place) 2018
2017 ACM-ICPC Daejeon Regional 17th place 2017

TA works

2024

- (spring) MAS 275 Discrete mathematics at KAIST

2023

- (fall) MAS 102 Calculus 2 and MAS 480 Topological methods in combinatorics at KAIST
- (spring) MAS 101 Calculus 1 and MAS 275 Discrete mathematics at KAIST

2022

- (fall) MAS 102 Calculus 2 and MAS 477 Introduction to Graph Theory at KAIST
- (spring) MAS 102 Calculus 2 and MAS 275 Discrete mathematics at KAIST

2021

- (fall) MAS 102 Calculus 2 and CC511 Probability and Statistics at KAIST
- (spring) MAS 101 Calculus 1 at KAIST (Won the Outstanding Teaching Assistant Award).