

Minki Kim

Curriculum Vitae

IBS Discrete Mathematics Group
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Research Interests

- Discrete geometry, topological combinatorics, and graph theory

Positions

- 2020.09 – **Postdoctoral Research Fellow**
present **IBS Discrete Mathematics Group**, Daejeon, South Korea
- 2018.09 – **Postdoctoral Fellow** (hosted by Ron Aharoni)
- 2020.08 **Technion – Israel Institute of Technology**, Haifa, Israel

Education

Korea Advanced Institute of Science and Technology (KAIST),
Daejeon, South Korea

- 2014 – 2018 **Ph.D in Mathematical Sciences**
Advisor Andreas Holmsen
Thesis Title On fractional Helly properties in graphs without large complete minors
- 2012 – 2014 **M.S. in Mathematical Sciences**
Advisor Andreas Holmsen
Thesis Title Intersection patterns of subtree families and colorful fractional Helly theorems
- 2008 – 2012 **B.S. in Mathematical Sciences**

Publications

Accepted/Published

- [13] J. Kim, **M. Kim** and O. Kwon, "Rainbow independent sets on dense graph classes", *Discrete Appl. Math.*, accepted, 2021.
- [12] **M. Kim** and A. Lew, "Complexes of graphs with bounded independence number", *Israel J. Math.*, accepted, 2021.
- [11] R. Aharoni, J. Briggs, J. Kim, and **M. Kim**, "Badges and rainbow matchings", *Discrete Math.*, 344(6):112363, 2021.
- [10] J. Kim and **M. Kim**, "Domination numbers and noncover complexes of hypergraphs", *J. Combin. Theory Ser. A*, 180:105408, 2021.
- [9] I. Choi, W. Joo, and **M. Kim**, "The layer number of α -evenly distributed point sets", *Discrete Math.*, 343(10):112029, 2020.
- [8] J. Briggs and **M. Kim**, "Choice functions in the intersection of matroids", *Electron. J. Combin.*, 26(4):P4.26, 2019.
- [7] G-S. Cheon, J. Kim, **M. Kim**, and S. Kitaev, "Word-representability of Toeplitz graphs", *Discrete Appl. Math.*, 270:96–105, 2019.
- [6] A. Holmsen, **M. Kim**, and S. Lee, "Nerves, minors, and piercing numbers", *Trans. Amer. Math. Soc.*, 371(12):8755–8779, 2019.
- [5] G-S. Cheon, J. Kim, **M. Kim**, S. Kitaev, and A. Pyatkin, "On k -11-representable graphs", *J. Combin.*, 10(3):491-513, 2019.
- [4] I. Choi, J. Kim, and **M. Kim**, "On operations preserving semi-transitive orientability of graphs", *J. Comb. Optim.*, 37(4):1351–1366, 2019.
- [3] **M. Kim**, B. Lidický, T. Masařík, and Florian Pfender, "Notes on complexity of packing coloring", *Inform. Process. Lett.*, 137:6–10, 2018.
- [2] I. Choi, J. Jung, and **M. Kim**, "On tiling the integers with 4-sets of the same gap sequence", *Discrete Math.*, 341(4):957–964, 2018.
- [1] **M. Kim**, "A note on the colorful fractional Helly theorem", *Discrete Math.*, 340(1):3167–3170, 2017.

Submitted Manuscripts

- 2021 J. Kim, **M. Kim** and O. Kwon, "A system of disjoint representatives of line segments with given k directions", arXiv:2101.02887.

2019 R. Aharoni, J. Briggs, J. Kim, and **M. Kim**, “Rainbow independent sets in certain classes of graphs”, arXiv:1909.13143.

Talks

Invited Talks at Conferences and Workshops

- 2020/07/07 “Complexes of graphs with bounded independence number”
CoSP Workshop and School on Topological Combinatorics
Virtual Workshop
- 2019/07/22 “Rainbow independent sets in graphs”
CoSP Workshop and School on Topological Methods
Charles University, Prague, Czech Republic
- 2018/08/15 “Nerves and minors”
Topological Combinatorics in Shantou
Guangdong Technion – Israel Institute of Technology, Shantou, China
- 2017/04/22 “Nerves and minors”
The 82nd KPPY Combinatorics Workshop
Yeungnam University, Gyeongsan, Republic of Korea
- 2017/02/28 “The layer number of evenly-distributed point sets”
The 15th KIAS Combinatorics Workshop
KIAS, Seoul, Republic of Korea
- 2016/02/27 “Colorful and fractional Helly theorems”
The 11th KIAS Combinatorics Workshop
KIAS, Seoul, Republic of Korea
- 2014/02/19 “Intersection patterns of subtree families and colorful fractional Helly theorems”
The 62nd KPPY Combinatorics Workshop
Pusan National University, Pusan, Republic of Korea

Invited Seminar Talks

- 2021/02/23 “Rainbow paths and rainbow matchings”
IBS Discrete Math Seminar
IBS, Daejeon, Republic Korea

- 2020/09/29 “Complexes of graphs with bounded independence number”
IBS Discrete Math Seminar
IBS, Daejeon, Republic Korea
- 2019/05/16 “Rainbow independent sets in graphs”
Topology and Combinatorics Seminar at Ajou University
Ajou University, Suwon, Republic of Korea
- 2019/04/30 “Rainbow independent sets in certain classes of graphs”
BGU Combinatorics Seminar
Ben-Gurion University, Be'er Sheva, Israel
- 2019/04/08 “The fractional Helly properties of families of non-empty sets”
HU Combinatorics Seminar
Hebrew University, Jerusalem, Israel
- 2018/11/11 “Helly type theorems for open connected sets in the plane”
Bar-Ilan Combinatorics Seminar
Bar-Ilan University, Ramat Gan, Israel
- 2018/10/31 “The fractional Helly properties of graphs without large complete minors”
Technion Combinatorics Seminar
Technion – Israel Institute of Technology, Haifa, Israel
- 2018/06/12 “Helly type theorems in combinatorics”
Incheon combinatorics seminar
Incheon National University, Incheon, Republic of Korea

Contributed Talks

- 2020/10/23 “Topological colorful Helly for rainbow independent sets”
2020 KMS Annual Meeting
Virtual Conference

Teaching Experience

Teaching Assistant at KAIST

- 2012-2017 College Mathematics, Calculus I, Calculus II, Introduction to Linear Algebra, Linear Algebra, Discrete Mathematics, Differential Equations and Applications.