

Donggyu Kim

CONTACT INFORMATION	Department of Mathematical Sciences KAIST 291 Daehak-ro Yuseong-gu Daejeon 34141 South Korea donggyu@kaist.ac.kr https://dimag.ibs.re.kr/home/donggyu/	Discrete Mathematics Group Institute for Basic Science (IBS) 55 Expo-ro Yuseong-gu Daejeon 34126 South Korea
RESEARCH INTERESTS	Graph Theory and Matroid Theory: Graphs with vertex-minors, delta-matroids, etc.	
EDUCATION	07/2019-	Discrete Mathematics Group, Institute for Basic Science (IBS) , Daejeon, Korea. Training student.
	03/2019-	KAIST , Daejeon, Korea. M.S./Ph.D integrated program in Mathematics. Advisor: Sang-il Oum.
	03/2015-02/2019	KAIST , Daejeon, Korea. B.S. in Mathematics with <i>Cum Laude</i> .
	03/2012-02/2015	KOREA SCIENCE ACADEMY OF KAIST , Busan, Korea.
MILITARY SERVICE	03/2022-	Alternative service in KAIST until 02/2025.
SUBMITTED PAPERS	<ol style="list-style-type: none">1. Donggyu Kim. “Baker-Bowler theory for Lagrangian Grassmannians”. Submitted, arXiv: 2403.02356, 2024.2. Donggyu Kim and Sang-il Oum. “Note on Hamiltonicity of basis graphs of even delta-matroids”. Submitted, arXiv: 2308.05772, 2023.3. Tong Jin and Donggyu Kim. “Orthogonal matroids over tracts”. Submitted, arXiv: 2303.05353, 2023.4. Junggho Ahn, Debsoumya Chakraborti, Kevin Hendrey, Donggyu Kim, and Sang-il Oum. “Twin-width of random graphs”. Submitted, arXiv: 2212.07880, 2022.	
ACCEPTED PAPERS	<ol style="list-style-type: none">5. Donggyu Kim and Sang-il Oum. “Vertex-minors of graphs: A survey”. <i>Discrete Appl. Math.</i>, July 2024. DOI: 10.1016/j.dam.2024.03.011.6. Donggyu Kim and Sang-il Oum. “Prime vertex-minors of a prime graph”. <i>European J. Combin.</i>, 118:103871, May 2024. DOI: 10.1016/j.ejc.2023.103871, arXiv: 2202.07877.7. Donggyu Kim, Duksang Lee, and Sang-il Oum. “Γ-graphic delta-matroids and their applications”. <i>Combinatorica</i>, 43(5):963-983, October 2023. DOI: 10.1007/s00493-023-00043-6, arXiv: 2104.11383.8. Donggyu Kim and Suil O. “Eigenvalues and parity factors in graphs with given minimum degree”. <i>Discrete Math.</i>, 346(4):113290, April 2023. DOI: 10.1016/j.disc.2022.113290, arXiv: 2111.12966.	

9. Jungho Ahn, Kevin Hendrey, **Donggyu Kim** and Sang-il Oum. “Bounds for the twin-width of graphs”. *SIAM J. Discrete Math.*, **36**(3):2352-2366, 2022. DOI: 10.1137/21M1452834, arXiv: 2110.03957.

REFEREED
CONFERENCE
PAPERS

10. **Donggyu Kim**, Duksang Lee, and Sang-il Oum. “ Γ -graphic delta-matroids and their applications”. In: *Proceedings of the 32nd International Symposium on Algorithms and Computation (ISAAC2021, December 6-8, 2021, Fukuoka, Japan)*. Ed. by Hee-Kap Ahn and Kunihiko Sadakane. Vol. 212. Accepted. Dagstuhl, Germany: Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021, 70:1-70:13. DOI: 10.4230/LIPIcs.ISAAC.2021.70.

RESEARCH TALKS

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| Jul 08, 2024 | (Upcomming) Baker-Bowler theory for Lagrangian Grassmannians, <i>SIAM Conference on Discrete Mathematics (DM24)</i> , Spokane, Washington, U.S. |
| Apr 19, 2024 | (Upcomming) Baker-Bowler theory for Lagrangian Grassmannians, <i>2024 KMS Spring Meeting</i> , Daejeon, South Korea. |
| Mar 18, 2024 | Twin-width of random graphs, <i>Combinatorics Seminar</i> , Yeungnam University, Gyeongsan, Gyeongbuk, South Korea. |
| Mar 09, 2024 | Orthogonal matroids over tracts, <i>30th KIAS Combinatorics Workshop</i> , Seoul, South Korea. |
| Oct 28, 2023 | Hamiltonicity of basis graphs of even delta-matroids, <i>2023 KMS Annual Meeting</i> , Seoul, South Korea. |
| Sep 19, 2023 | Orthogonal matroids over tracts, <i>Discrete Math Seminar</i> , IBS Discrete Mathematics Group, Daejeon, South Korea. |
| Jun 07, 2023 | Prime vertex-minors of prime graphs, <i>CanADAM 2023</i> , Winnipeg, Canada. |
| Apr 29, 2023 | Orthogonal matroids over tracts, <i>2023 KMS Spring Meeting</i> , Daejeon, South Korea. |
| Apr, 2023 | (Poster) Orthogonal Matroids over Tracts, (Internal) IBS ECOPRO and DIMAG poster day. |
| Dec 04, 2022 | Matroid theory arising from projective geometry, <i>Workshop for Young Mathematicians in Korea 2022</i> , KAIST, Daejeon, South Korea. |
| Jun 01, 2022 | Stronger versions of Tutte’s wheel theorem for vertex-/pivot-minors, <i>Student Symposium in Combinatorics 2022</i> , Online, Australia. |
| May 28, 2022 | (Poster) Γ -graphic delta-matroids and their applications, <i>2022 KSIAM Spring Conference</i> , IBS, Daejeon, South Korea. |
| Apr 28, 2022 | A stronger version of Tutte’s wheel theorem for vertex-minors, <i>2022 KMS Spring Meeting</i> , Online, South Korea. |
| Feb 21, 2022 | A stronger version of Tutte’s wheel theorem for vertex-minors, <i>Discrete Math Seminar</i> , IBS Discrete Mathematics Group, Daejeon, South Korea. |
| Nov 25, 2021 | Eigenvalues and parity factors in graphs, <i>KAIST Math Graduate student Seminar</i> , Online, KAIST, South Korea. |
| Nov 14, 2021 | Eigenvalues and parity factors in graphs, <i>2021 China-Korea Young Scholars’ Symposium on Discrete Mathematics, Statistics and Optimization</i> , Online, South Korea and China. |
| Oct 26, 2021 | Γ -graphic delta-matroids and their applications, <i>Discrete Math Seminar</i> , IBS Discrete Mathematics Group, Daejeon, South Korea. |
| Oct 21, 2021 | Γ -graphic delta-matroids and their applications, <i>2021 KMS Annual Meeting</i> , Online, South Korea. |

AWARDS

May 28, 2022

Excellent Poster Award (Title: Γ -graphic delta-matroids and their applications), 2022 KSIAM Spring Conference.

TEACHING
EXPERIENCE

Fall	2023	TA, Introduction to Graph Theory (MAS477), <i>KAIST</i> .
Summer	2023	TA, 2023 Third International Summer School for Advanced Undergraduate Students – Topological Methods in Combinatorics, <i>KAI-X Mathematics Global Workshop</i> (July 31st – August 3rd).
Spring	2023	TA, Linear Algebra (MAS212), <i>KAIST</i> .
Fall	2022	TA, Logic and Set Theory (MAS270), <i>KAIST</i> .
Spring	2022	TA, Discrete Mathematics (MAS275), <i>KAIST</i> .
Fall	2021	TA, Probability and Statistics (CC511), <i>KAIST</i> . TA, Introduction to Linear Algebra (MAS109), <i>KAIST</i> .
Spring	2021	TA, Differential Equations and Applications (MAS201), <i>KAIST</i> . TA, Discrete Mathematics (MAS275), <i>KAIST</i> .
Fall	2020	TA, Calculus I (MAS101), <i>KAIST</i> . TA, Introduction to Graph Theory (MAS477), <i>KAIST</i> .
Spring	2020	TA, Introduction to Linear Algebra (MAS109), <i>KAIST</i> . (Excellent TA Award) TA, Discrete Mathematics (MAS275), <i>KAIST</i> .
Fall	2019	TA, Introduction to Linear Algebra (MAS109), <i>KAIST</i> . TA, Linear Algebra (MAS212), <i>KAIST</i> .
Spring	2019	TA, Calculus I (MAS101), <i>KAIST</i> .

RELEVANT
SKILLS

Languages:	Korean and English
Design:	KAIST 45th Anniversary Emblem Contest - Prize winner (Jan. 6th, 2016) KAIST Dept. of Mathematical Sciences Logo Design Contest - 2nd award (Nov. 29th, 2021)
Live streaming system:	Familiar with YouTube Live, ATEM, and OBS Studio.

(Last Updated: March 30, 2024)