

KIAS-AORC Joint Workshop

(The 21st KIAS Combinatorics Workshop)

**Elysian Gangchon Resort,
Chuncheon, Korea**

August 20–23, 2018

Information

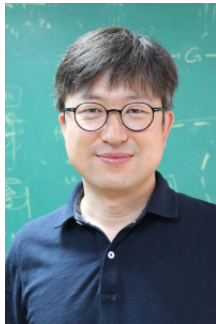
Title: KIAS-AORC Joint Workshop (The 21st KIAS Combinatorics Workshop)

Date: August 20–23, 2018

Venue: Elysian Gangchon Resort, Chuncheon, Korea

Web: events.kias.re.kr/h/combinatorics/?pageNo=3374 or kcws.combinatorics.kr

Invited Lecturer



Sang-il Oum (KAIST)

Organizers

Jong Yoon Hyun (KIAS)

Jang Soo Kim (Sungkyunkwan University)

Jeong Han Kim (KIAS)

Seog-Jin Kim (Konkuk University)

Young Soo Kwon (Yeungnam University)

Sang June Lee (Duksung Women's University)

Seunghyun Seo (Kangwon National University)

Timetable

August 20 (Monday)		
13:30 – 13:55	Registration	
13:55 – 14:00	Opening address	
14:00 – 17:00	Lecture 1, 2	
Chair: Seunghyun Seo		
14:00 – 15:15	Sang-il Oum	Connectivity: 2-connected graph
15:15 – 15:45	Coffee break	
15:45 – 17:00	Sang-il Oum	Connectivity: Menger's Theorem
17:00 – 18:00	Group Photo, <i>Doing homework I</i>	
18:20 –	Welcome reception (Brief introductions of all participants)	

August 21 (Tuesday)		
9:15 – 12:15	Lecture 3, 4	
Chair: Sang June Lee		
9:15 – 10:30	Sang-il Oum	Connectivity: 3-connected graph
10:30 – 11:00	Coffee break	
11:00 – 12:15	Sang-il Oum	Planar graph: Structures of 3-connected planar graphs
12:15 – 14:00	Lunch	
14:00 – 15:00	Discussion session for homework I (by Sang-il Oum)	
15:00 – 15:30	Coffee break	
15:30 – 17:30	<i>Doing homework II</i>	
18:00 –	Dinner	

August 22 (Wednesday)		
9:15 - 12:15	Lecture 5, 6	
Chair: Jang Soo Kim		
9:15 - 10:30	Sang-il Oum	Planar graph: Proof of Kuratowski's theorem I
10:30 - 11:00	Coffee break	
11:00 - 12:15	Sang-il Oum	Planar graph: Proof of Kuratowski's theorem II
12:15 - 14:00	Lunch	
14:00 - 15:00	Discussion session for homework II (by Sang-il Oum)	
15:00 - 15:30	Coffee break	
15:30 - 17:30	<i>Doing homework III</i>	
18:00 -	Banquet (Starlight Grill BBQ)	

August 23 (Thursday)		
9:15 - 12:15	Lecture 7, 8	
Chair: Seog-Jin Kim		
9:15 - 10:30	Sang-il Oum	Graph minors and well-quasi-ordering I
10:30 - 11:00	Coffee break	
11:00 - 12:15	Sang-il Oum	Graph minors and well-quasi-ordering II
12:15 - 14:00	Lunch	
14:00 - 15:00	Discussion session for homework III (by Sang-il Oum)	
15:00 - 15:10	Awards, Closing remark	

Lecturer: Sang-il Oum

Affiliation: KAIST

Title: An Introduction to Graph Theory

Abstract

In this lecture, I aim to cover the proof of Kuratowski's theorem stating that a graph is planar if and only if it does not have a subdivision of $K_{3,3}$ or a subdivision of K_5 as a subgraph. For that, we will need to develop tools for 3-connected graphs. We will build necessary tools towards the proof of Kuratowski's theorem. After the proof, we will talk about its ultimate generalizations, called the graph minor theorem of Robertson and Seymour.

Outline

- Lecture 1–3: Connectivity
 - 2-connected graphs
 - Menger's theorem
 - 3-connected graphs
- Lecture 4–6: Planar graphs
 - Structures of 3-connected planar graphs
 - Proof of Kuratowski's theorem (I, II)
- Lecture 7–8: Graph minors and well-quasi-ordering
 - Well-quasi-ordering
 - Higman's lemma and Kruskal's theorem
 - Graph Minor Theorem (survey)

List of Participants

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