

**2019 Joint Conference of AORC-IRCTMT-IDEaS**

**International Conference on  
Matrix Theory and Applications:  
Combinatorics, Optimization & Data Analysis**

**Jeju National University**

**Jeju, Korea**

**May 23-27, 2019**

**Organized by**

**AORC (Applied Algebra and Optimization Research Center, SKKU, Korea)**

**IRCTMT (International Research Center for Tensor and Matrix Theory, Shanghai Univ, China)**

**IDEaS (Institute for Data Engineering and Science, Georgia Tech, USA)**

**Hosted by**

**AORC (Applied Algebra and Optimization Research Center, SKKU, Korea)**

# Program



# OUTLINE PROGRAM

Time\Date	May 23	May 24 (Fri)	May 25 (Sat)	May 26 (Sun)
08:00-09:00		Registration		
08:30-09:00		Opening Ceremony (S. Kwon) <ul style="list-style-type: none"> <li>• Gi-Sang Cheon (AORC, SKKU)</li> <li>• Qing-Wen Wang (IBCTMT, SHU)</li> <li>• Haesun Park (IDEAS, Georgia Tech.)</li> <li>• Chi-Kwong Li (ILAS, College of William &amp; Mary)</li> <li>• Jong Hae Keum (President of KMS, KIAS)</li> <li>• Young Heun Jee (Vice President of JNU)</li> </ul>		
09:00-09:50		Chi-Kwong Li	Richard Brualdi	Seog-Jin Kim
09:50-10:20		Coffee Break	Coffee Break	Coffee Break
Room		Ara Hall-1 Chair	Ara Hall-1 Chair	Ara Hall-1 Chair
10:20-10:50		Qing-Wen Wang	Bryan Shader	Jang Soo Kim
10:50-11:20		Yang Zhang	Mao-Ting Chien	Gabriel Larotonda
11:30-12:00		Zhuo-Heng He	Xiao-Dong Zhang	Seog-Jin Kim
12:00-12:30		Hyun-Min Kim	Shangzhi Li	Marcel Gaal
12:30-14:00		Group Photo (12:30) Lunch	Lunch	Lunch (12:30-13:20)
14:00-14:50		Haesun Park	Qing-Wen Wang	
15:00-15:30		Michael Ng (Plenary Talk)	Lajos Molnár (Plenary Talk)	
15:30-16:00	Registration at Hotel	Rajendra Bhatia Yongdo Lim	Chi-Kwong Li Yiu-Tung Poon	13:20 Leave at JNU
16:00-16:30		Coffee Break	Coffee Break	14:00-16:00 Seongsan Ilchubong Peak
16:30-17:00		Dragana Cvretković-Ilčić Takeaki Yamazaki	Seung-Hyeok Kye Gustavo Corach	16:30-17:30 Jeju World Natural Heritage Center
17:00-17:30		Lajos Molnár	Yongdo Lim	18:00-20:00 Banquet (Taebaeksan)
18:00-20:00	Welcome Reception	Dinner		20:30 Arrive at Hotel



# Full Program

## Day 1: May 23 (Thursday)

Time	Ramada Jeju Cityhall
14:00-18:00	Registration
18:00-20:00	Welcome reception ("Ainbang" near Ramada Jeju Cityhall)

## Day 2: May 24 (Friday)

Time	Ara Hall-1	
	Opening Ceremony	Chair
08:30-09:00	<b>Gi-Sang Cheon</b> (Director of AORC, SKKU) <b>Qing-Wen Wang</b> (Director of IRCTMT, SHU) <b>Haesun Park</b> (IDeaS, Georgia Tech.) <b>Chi-Kwong Li</b> (ILAS, College of William & Mary) <b>Jong Hae Keum</b> (President of KMS, KIAS) <b>Young Heon Ji</b> (Vice President of JNU)	<b>Soonhak Kwon</b>

### Plenary Talk

Time	Ara Hall-1	
	Speaker & Title	Chair
09:00-09:50	<b>Richard Brualdi</b> (University of Wisconsin - Madison) Stirling Permutations	<b>Chi-Kwong Li</b>
09:50-10:20	<b>Coffee Break</b>	

### Parallel Sessions

Time	Ara Hall-1	
	Speaker & Title	Chair
10:20-10:50	<b>Qing-Wen Wang</b> (Shanghai University) The new developments of the Sylvester-like matrix equations with applications	<b>Yiu-Tung Poon</b>
10:50-11:20	<b>Yang Zhang</b> (University of Manitoba) Consistency of quaternion matrix equations $AX^* - XB = C$ and $X - AX^*B = C$	

11:30-12:00	<div><b>Zhuo-Heng He</b> (Shanghai University)</div> <div>Some quaternion matrix equations involving <math>\phi</math>-skew-Hermiticity</div>	<b>Yiu-Tung Poon</b>
12:00-12:30	<div><b>Hyun-Min Kim</b> (Pusan National University)</div> <div>On the extreme solutions of a class of nonlinear matrix equation</div>	
12:30-14:00	<b>Group Photo (12:30) &amp; Lunch</b>	

Time	Ara Hall-2	
	Speaker & Title	Chair
10:20-10:50	<b>Bryan Shader</b> (University of Wyoming) Diabolical Diameter Dilemmas	<b>Woong Kook</b>
10:50-11:20	<b>Mao-Ting Chien</b> (Soochow University) A combinatorial method for computing Riemann matrices of quartic curves	
11:30-12:00	<b>Xiao-Dong Zhang</b> (Shanghai Jiao Tong University) Equitable Partition Theorem of Tensors and Spectrum of Generalized Power	
12:00-12:30	<b>Shangzhi Li</b> (Beihang University) Subgroup structure of Classical groups	
12:30-14:00	<b>Group Photo (12:30) &amp; Lunch</b>	

### Plenary Talk

Time	<b>Ara Hall-1</b>	
	Speaker & Title	Chair
14:00-14:50	<b>Michael K. Ng</b> (Hong Kong Baptist University) Robust Tensor Completion and Its Applications	<b>Haesun Park</b>

Time	Ara Hall-1	
	Speaker & Title	Chair
15:00-15:30	<b>Rajendra Bhatia</b> (Ashoka University) The Bures - Wasserstein distance between positive definite matrices	<b>Jimmie Lawson</b>
15:30-16:00	<b>Yongdo Lim</b> (Sungkyunkwan University) Off-diagonal constant Hermitian matrices	
16:00-16:30	<b>Coffee Break</b>	

16:30-17:00	<b>Dragana Cvetković Ilić</b> (University of Niš) Completion problems of operator matrices to Fredholm, Weyl and Kato operators	<b>Lajos Molnár</b>
17:00-17:30	<b>Takeaki Yamazaki</b> (Toyo University) Power monotonicity for a path of operator means	
18:00-20:00	<b>Dinner</b>	

Time	Ara Hall-2	
	Speaker & Title	Chair
15:00-15:30	<b>Jein-Shan Chen</b> (National Taiwan Normal University) On unitary elements defined on Lorentz cone and their applications	Kim-Chuan Toh
15:30-16:00	<b>Donghwan Kim</b> (KAIST) Accelerated First-order Methods for Large-scale Optimization	
16:00-16:30	Coffee Break	
16:30-17:00	<b>Woong Kook</b> (Seoul National University) Harmonic cycles and network decentralization	Yongdo Lim
17:00-17:30	<b>Delin Chu</b> (National University of Singapore) An SVD-Based Algorithm for Orthogonal Low Rank Approximation of Tensors	
18:00-20:00	Dinner	

## Day 3: May 25 (Saturday)

### Plenary Talks

Time	<b>Ara Hall-1</b>	
	Speaker & Title	Chair
09:00-09:50	<b>Haesun Park</b> (Georgia Institute of Technology) Joint Nonnegative Matrix Factorization for Unsupervised and Semi-Supervised Clustering	<b>Richard Brualdi</b>
09:50-10:20	<b>Coffee Break</b>	
10:20-11:10	<b>Kim-Chuan Toh</b> (National University of Singapore) Exploiting Second Order Sparsity in Big Data Optimization	<b>Michael K. Ng</b>

### Parallel Sessions

Time	Ara Hall-1	
	Speaker & Title	Chair
11:30-12:00	<b>Jimmie Lawson</b> (Louisiana State University) Extending Matrix and Operator Means to Barycentric Maps	<b>Rajendra Bhatia</b>
12:00-12:30	<b>Fumio Hiai</b> (Tohoku University) Matrix limit theorems of reciprocal Lie-Trotter type	
12:30-14:00	<b>Lunch</b>	

Time	Ara Hall-2	
	Speaker & Title	Chair
11:30-12:00	<b>Sangwoon Yun</b> (Sungkyunkwan University) Probabilistic K-means with Sparsity	<b>Delin Chu</b>
12:00-12:30	<b>Defeng Sun</b> (The Hong Kong Polytechnic University) Spectral Operators of Matrices	
12:30-14:00	<b>Lunch</b>	

### Plenary Talk

Time	Ara Hall-1	
	Speaker & Title	Chair
14:00-14:50	<b>Lajos Molnár</b> (University of Szeged) Symmetries of structures of positive (semi)definite matrices	<b>Qing-Wen Wang</b>

Time	Ara Hall-1	
	Speaker & Title	Chair
15:00-15:30	<b>Chi-Kwong Li</b> (College of William and Mary) Mappings between matrix spaces	<b>Bryan Shader</b>
15:30-16:00	<b>Yiu-Tung Poon</b> (Iowa State University) Submultiplicativity of the numerical radius of commuting matrices of order two	
16:00-16:30	<b>Coffee Break</b>	

16:30-17:00	<div>Seung-Hyeok Kye (Seoul National University)</div> <div>Entangled edge states of corank one with positive partial transposes</div>	Fumio Hiai
17:00-17:30	<div>Gustavo Corach (Instituto Argentino de Matemática)</div> <div>On a bilateral Schur complement in the sense of Ando</div>	
18:00-20:00	Dinner	

Time	Ara Hall-2	
	Speaker & Title	Chair
15:00-15:30	<b>Louis Shapiro</b> (Howard University) Palindromes and Pseudo-involutions in the Riordan group	<b>Jang Soo Kim</b>
15:30-16:00	<b>I-Chiau Huang</b> (Academia Sinica) Matrices from Numerical Semigroups	
16:00-16:30	<b>Coffee Break</b>	
16:30-17:00	<b>Huihui Zhu</b> (Hefei University of Technology) Weighted pseudo core inverses in rings	<b>Yang Zhang</b>
17:00-17:30	<b>Libin Li</b> (Yangzhou University) From representation theory of fusion ring to matrix equations	
18:00-20:00	<b>Dinner</b>	

## Day 4: May 26 (Sunday)

### Plenary Talk

Time	<b>Ara Hall-1</b>	
	Speaker & Title	Chair
09:00-09:50	<b>Xuding Zhu</b> (Zhejiang Normal University) List colouring and Alon-Tarsi number of planar graphs	<b>Seog-Jin Kim</b>
09:50-10:20	<b>Coffee Break</b>	

### Parallel Sessions

Time	Ara Hall-1	
	Speaker & Title	Chair
10:20-10:50	<b>Jang Soo Kim</b> (Sungkyunkwan University) Generalized Schur function determinants using Bazin-Sylvester identity	<b>Xuding Zhu</b>
10:50-11:20	<b>Gabriel Larotonda</b> (Universidad de Buenos Aires) Geodesics of the unitary group for weakly unitarily invariant norms	
11:30-12:00	<b>Seog-Jin Kim</b> (Konkuk University) Coloring squares of graphs with mad constraints	
12:00-12:30	<b>Marcell Gaál</b> (University of Szeged) A class of convex combination preservers on density operators	
12:30-14:00	<b>Lunch (12:30 - 13:20)</b>	

Time	Ara Hall-2	
	Speaker & Title	Chair
10:20-10:50	<b>Ren-Cang Li</b> (University of Texas at Arlington) Convergence of Lanczos Methods for Trust-Region Subproblem	<b>Soonhak Kwon</b>
10:50-11:20	<b>Pei Yuan Wu</b> (National Chiao Tung University) Equality of Numerical Ranges of Matrix Powers	
11:30-12:00	<b>Raymond Nung-Sing Sze</b> (The Hong Kong Polytechnic University) Star-shapedness of $(p, q)$ -Matricial Range	
12:00-12:30	<b>Jorge Antezana</b> (National University of La Plata) Polar Decompositions and Aluthge Transforms	
12:30-14:00	<b>Lunch (12:30 - 13:20)</b>	