



WALCOM 2021

# The 15<sup>th</sup> International Conference and Workshops on Algorithms and Computation

February 28 - March 2, 2021  
Yangon, Myanmar



## The 15<sup>th</sup> International Conference and Workshops on Algorithms and Computation (WALCOM 2021) Program

**Day 1: February 28, 2021 (Sunday)**  
**Reference Time Zone of the Program: Myanmar Time (UTC +6:30)**

<b>9:30-10:00</b>	<b>Online Reception</b> Opportunity for a camera and microphone test
<b>10:00-10:25</b>	<b>Opening Ceremony</b> Welcome Speech by the Rector, UIT WALCOM 2021 Program Committee Report by PC Chair
<b>10:25-10:30</b>	WALCOM 2021 Photo Session

<b>Session 1-1: 10:30-11:30</b>	
<b>Graph Algorithms 1</b>	
Algorithms for Diameters of Unicycle Graphs and Diameter-Optimally Augmenting Trees <i>Haitao Wang and Yiming Zhao</i>	
On Short Fastest Paths in Temporal Graphs <i>Umesh Sandeep Danda, G. Ramakrishna, Jens M. Schmidt and M. Srikanth</i>	
Minmax Regret 1-Sink Location Problems on Dynamic Flow Path Networks with Parametric Weights <i>Tetsuya Fujie, Yuya Higashikawa, Naoki Katoh, Junichi Teruyama and Yuki Tokuini</i>	
<b>11:30-13:00</b>	<b>BREAK</b>

<b>Session 1-2: 13:00-14:00</b>	
<b>Randomized Algorithm, Online algorithm, Data Structures</b>	
The Bike Sharing Problem <i>Jurek Czyzowicz, Konstantinos Georgiou, Ryan Killick, Evangelos Kranakis, Danny Krizanc, Lata Narayanan, Jaroslav Opatrny and Denis Pankratov</i>	
Efficient Generation of a Card-based Uniformly Distributed Random Derangement <i>Soma Murata, Daiki Miyahara, Takaaki Mizuki and Hideaki Sone</i>	
Compact Data Structures for Dedekind Groups and Finite Rings <i>Bireswar Das and Shivdutt Sharma</i>	
<b>14:00-14:30</b>	<b>BREAK</b>

<b>Session 1-3: 14:30-15:30</b>	
<b>Computational Geometry 1</b>	
Competitive Location Problems: Balanced Facility Location and the One-Round Manhattan Voronoi Game <i>Thomas Byrne, Sándor Fekete, Jörg Kalcsics and Linda Kleist</i>	
Faster Multi-Sided Boundary Labelling <i>Prosenjit Bose, Saeed Mehrabi and Debajyoti Mondal</i>	
On the Geometric Red-Blue Set Cover Problem <i>Raghunath Reddy Madireddy, Subhas Nandy and Supantha Pandit</i>	
<b>15:30-16:00</b>	<b>BREAK</b>

<b>16:00-17:00</b>	<b>Invited Talk</b>
<b>Majority Spanning Trees, Cotrees and Their Applications</b>	
Dr. Mohammad Kaykobad	
Distinguished Professor, CSE Department, BRAC University	

**Day 2: March 1, 2021 (Monday)**  
**Reference Time Zone of the Program: Myanmar Time (UTC +6:30)**

<b>Session 2-1: 09:00-10:00</b>	
<b>Graph Algorithms 2</b>	
Fixed-Treewidth-Efficient Algorithms for Edge-Deletion to Interval Graph Classes <i>Toshiki Saitoh, Ryo Yoshinaka and Hans L. Bodlaender</i>	
$r$ -Gathering Problems on Spiders: Hardness, FPT Algorithms, and PTASes <i>Soh Kumabe and Takanori Maehara</i>	
An Improvement of Reed's Treewidth Approximation <i>Mahdi Belbasi and Martin Fürer</i>	
<b>10:00-10:30</b>	<b>BREAK</b>

<b>Session 2-2: 10:30-11:30</b>	
<b>Graph Algorithms 3</b>	
Homomorphisms to digraphs with large girth and oriented colorings of minimal series-parallel digraphs <i>Frank Gurski, Dominique Komander and Marvin Lindemann</i>	
Overall and delay complexity of the CLIQUES and Bron-Kerbosch algorithms <i>Alessio Conte and Etsuji Tomita</i>	
Computing $L(p,1)$ -Labeling with Combined Parameters <i>Tesshu Hanaka, Kazuma Kawai and Hirotaka Ono</i>	
<b>11:30-13:00</b>	<b>BREAK</b>

<b>13:00-14:00 (JST 15:30-16:30)      Invited Talk</b>	
<b>A New Transportation Problem on a Graph with Sending and Bringing-Back Operations</b> Emeritus Prof. Tetsuo Asano, Japan Advanced Institute of Science and Technology	
<b>14:00-14:30</b>	<b>BREAK</b>

<b>Session 2-3: 14:30-15:30</b>	
<b>Computational Geometry 2</b>	
On Compatible Matchings <i>Oswin Aichholzer, Alan Arroyo, Zuzana Masárová, Irene Parada, Daniel Perz, Alexander Pilz, Josef Tkadlec and Birgit Vogtenhuber</i>	
Upward Point Set Embeddings of Paths and Trees <i>Elena Arseneva, Pilar Cano, Linda Kleist, Tamara Mchedlidze, Saeed Mehrabi, Irene Parada and Pavel Valtr</i>	
2-colored Point-set Embeddings of Partial 2-trees <i>Emilio Di Giacomo, Jaroslav Hančl and Giuseppe Liotta</i>	
<b>15:30-16:00</b>	<b>BREAK</b>

<b>Session 2-4: 16:00-17:00</b>	
<b>Graph Algorithms 4</b>	
Better approximation algorithms for maximum weight internal spanning trees in cubic graphs and claw-free graphs <i>Ahmad Biniiaz</i>	
APX-Hardness and Approximation for the $k$ -Burning Number Problem <i>Debajyoti Mondal, Parthiban Natarajan, Kavitha Venkatachalam and Indra Rajasingh</i>	
Efficient Enumeration of Non-isomorphic Distance-Hereditary Graphs and Ptolemaic Graphs <i>Kazuaki Yamazaki, Mengze Qian and Ryuhei Uehara</i>	
<b>17:00-17:30</b>	<b>BREAK</b>

<b>17:30-18:00</b>	<b>Business Meeting</b>
--------------------	-------------------------

**Day 3: March 2, 2021 (Tuesday)**  
**Reference Time Zone of the Program: Myanmar Time (UTC +6:30)**

**09:00-10:00 (EST 21:30-22:30)      Invited Talk**

**Understanding the Complexity of Motion Planning**

Prof. Erik Demaine, Massachusetts Institute of Technology

**Session 3-1: 10:30-11:30**

**Games, Puzzles, and Complexity**

Physical Zero-Knowledge Proof for Ripple Effect  
*Suthee Ruangwises and Toshiya Itoh*

Cyclic Shift Problems on Graphs  
*Giovanni Viglietta, Ryuhei Uehara and Kwon Kham Sai*

Mathematical Characterizations and Computational Complexity of Anti-Slide Puzzles  
*Ko Minamisawa, Ryuhei Uehara and Masao Hara*