

# SPAA 2020 Accepted Papers

## Regular Papers:

A Massively Parallel Algorithm for Minimum Weight Vertex Cover. *Mohsen Ghaffari, Ce Jin and Daan Nilis.*

A Unified Sparsification Approach for Matching Problems in Graphs of Bounded Neighborhood Independence. *Lazar Milenkovic and Shay Solomon.*

Almost Universal Anonymous Rendezvous in the Plane. *Sébastien Bouchard, Yoann Dieudonne, Andrzej Pelc and Franck Petit.*

Approximation Algorithms for Scheduling with Class Constraints. *Klaus Jansen, Alexandra Lassota and Marten Maack.*

Bandwidth-Optimized Parallel Algorithms for Sparse Matrix-Matrix Multiplication using Propagation Blocking. *Zhixiang Gu, Jose Moreira, David Edelsohn and Ariful Azad.*

Closing the Gap Between Cache-oblivious and Cache-adaptive Analysis. *Michael Bender, Rezaul Chowdhury, Rathish Das, Rob Johnson, William Kuszmaul, Andrea Lincoln, Quanquan Liu, Jayson Lynch and Helen Xu.*

Commitment and slack for online load maximization. *Samin Jamalabadi, Chris Schwiegelshohn and Uwe Schwiegelshohn.*

Communication vs synchronisation in parallel string comparison. *Alexander Tiskin.*

Connected Components on a PRAM in Log Diameter Time. *Sixue Liu, Robert Tarjan and Peilin Zhong.*

Constant-Length Labelling Schemes for Faster Deterministic Radio Broadcast. *Faith Ellen and Seth Gilbert.*

Contention Resolution with Message Deadlines. *Kunal Agrawal, Michael Bender, Jeremy Fineman, Seth Gilbert and Maxwell Young.*

Deterministic Leader Election in Anonymous Radio Networks. *Avery Miller, Andrzej Pelc and Ram Narayan Yadav.*

Efficient Local Medium Access. *Paweł Garncarek, Tomasz Jurdziński and Dariusz Kowalski.*

Fast Byzantine Agreement for Permissioned Distributed Ledgers. *Thomas Locher.*

Faster Deterministic All Pairs Shortest Paths in Congest Model. *Udit Agarwal and Vijaya Ramachandran.*

Functional Faults. *Gali Sheffi and Erez Petrank.*

Graph Sparsification for Derandomizing Massively Parallel Computation with Low Space. *Artur Czumaj, Peter Davies and Merav Parter.*

How to Manage High-Bandwidth Memory Automatically. *Rathish Das, Kunal Agrawal, Michael Bender, Jonathan Berry, Benjamin Moseley and Cynthia Phillips.*

Memory Tagging: Minimalist Synchronization for Scalable Concurrent Data Structures. *Dan Alistarh, Trevor Brown and Nandini Singhal.*

Non-Linear Ski Rental. *Boaz Patt-Shamir and Evyatar Yadai.*

On the Hardness of Massively Parallel Computation. *Kai-Min Chung, Kuan-Yi Ho and Xiaorui Sun.*

On the hardness of red-blue pebble games. *Pál András Papp and Roger Wattenhofer.*

Optimal Parallel Algorithms in the Binary-Forking Model. *Guy Blelloch, Jeremy Fineman, Yan Gu and Yihan Sun.*

Optimal Resource Allocation for Elastic and Inelastic Jobs. *Benjamin Berg, Mor Harchol, Justin Whitehouse, Weina Wang and Benjamin Moseley.*

Parallel Load Balancing on Constrained Client-Server Topologies. *Andrea Clementi, Emanuele Natale and Isabella Ziccardi.*

Parallel Planar Subgraph Isomorphism and Vertex Connectivity. *Lukas Gianinazzi and Torsten Hoefler.*

Predicate Detection to Solve Combinatorial Optimization Problems. *Vijay Garg.*

Priority Scheduling for Interactive Applications. *Kyle Singer, Noah Goldstein, Stefan Muller, Kunal Agrawal, I-Ting Lee and Umut Acar.*

pTrans: A Scalable Algorithm for Reservation Guarantees in Distributed Systems. *Yuhan Peng and Peter Varman.*

Randomized Incremental Convex Hull is Highly Parallel. *Guy Blelloch, Yan Gu, Julian Shun and Yihan Sun.*

Scheduling Flows on a Switch to Optimize Response Times. *Hamidreza Jahanjou, Rajmohan Rajaraman and David Stalfi.*

Self-Stabilizing Task Allocation In Spite of Noise. *Anna Dornhaus, Nancy Lynch, Frederik Mallmann-Trenn, Dominik Pajak and Tsvetomira Radeva.*

Simple Local Computation Algorithms for the General Lovasz Local Lemma. *Dimitris Achlioptas, Themis Gouleakis and Fotis Iliopoulos.*

Spectral Lower Bounds on the I/O Complexity of Computation Graphs. *Saachi Jain and Matei Zaharia.*

Sublinear Algorithms in T-interval Dynamic Networks. *Irvan Jahja and Haifeng Yu.*

The Append Memory Model: Why BlockDAGs Excel Blockchains. *Darya Melnyk and Roger Wattenhofer.*

The Online Multi-Commodity Facility Location Problem. *Jannik Castenow, Björn Feldkord, Till Knollmann, Manuel Malatyali and Friedhelm Meyer Auf der Heide.*

The Recoverable Consensus Hierarchy. *Wojciech Golab.*

Time- and Space-Optimal Discrete Clock Synchronization in the Beeping Model. *Michael Feldmann, Ardalan Khazraei and Christian Scheideler.*

Unconditional lower bounds for Adaptive Massively Parallel Computation. *Moses Charikar, Weiyun Ma and Li-Yang Tan.*

Work-efficient Batch-incremental Minimum Spanning Trees with Applications to the Sliding Window Model. *Daniel Anderson, Guy Blelloch and Kanat Tangwongsan.*

## **Brief Announcements:**

Brief Announcement: A Computational Model for Tensor Core Units. *Rezaul Chowdhury, Francesco Silvestri and Flavio Vella.*

Brief Announcement: A Discrete and Continuous Study of the Max-Chain-Formation Problem. *Jannik Castenow, Peter Kling, Till Knollmann and Friedhelm Meyer Auf der Heide.*

Brief Announcement: A Queueing Network Based Distributed Laplacian Solver. *Iqra Altaf Gillani and Amitabha Bagchi.*

Brief Announcement: Balanced Partitioning of several Cache-Oblivious Algorithms. *Yuan Tang.*

Brief Announcement: A Closer Look at Quantum Distributed Consensus. *Wojciech Golab and Hao Tan.*

Brief Announcement: A local constant approximation factor algorithm for minimum dominating set of certain planar graphs. *Sharareh Alipour and Amir Jafari.*

Brief Announcement: Benchmarking Recoverable Mutex Locks. *Jeffrey Xiao, Zheng Zhang and Wojciech Golab.*

Brief Announcement: Communication-Efficient Weighted Reservoir Sampling from Fully Distributed Data Streams. *Lorenz Hübschle-Schneider and Peter Sanders.*

Brief Announcement: Improved Work Span Tradeoff for Single Source Reachability and Approximate Shortest Paths. *Nairen Cao, Jeremy Fineman and Katina Russell.*

Brief Announcement: ParlayLib – A toolkit for parallel programming on shared-memory multicore machines. *Guy Blelloch, Daniel Anderson and Laxman Dhulipala.*

Brief Announcement: Cache-Efficient Parallel-Partition Algorithms using Exclusive-Read-and-Write Memory. *Alek Westover and William Kuszmaul.*

Brief Announcement: Communication Lower Bounds of Convolutions in CNNs. *Xiaoyang Zhang, Junmin Xiao and Guangming Tan.*

Brief Announcement: Communication-Optimal Tilings for Projective Nested Loops with Arbitrary Bounds. *Grace Dinh and James Demmel.*

Brief Announcement: Cross-Chain Payment Protocols with Success Guarantees. *Rob van Glabbeek, Vincent Gramoli and Pierre Tholoniati.*

Brief Announcement: Efficient Concurrent Range Queries in B+-trees using RCU-HTM. *Dimitrios Siakavaras, Panagiotis Billis, Konstantinos Nikas, Georgios Goumas and Nectarios Koziris.*

Brief Announcement: Efficient Distributed Algorithms for the  $K$ -Nearest Neighbors Problem. *Reza Fathi, Anisur Rahaman Molla and Gopal Pandurangan.*

Brief Announcement: Green Paging and Parallel Paging. *Enoch Peserico and Michele Scquizzato.*

Brief Announcement: How fast can you update your MST? (Dynamic algorithms for cluster computing). *Lawrence Li and Seth Gilbert.*

Brief Announcement: Investigating the Semantics of Futures in Transactional Memory Systems. *Jingna Zeng, Shady Issa, Seif Haridi, Luis Rodrigues and Paolo Romano.*

Brief Announcement: Lockfree Persistent Homology. *Dmitriy Morozov and Arnur Nigmatov.*

Brief Announcement: Network Partitioning and Avoidable Contention. *Yishai Oltchik and Oded Schwartz.*

Brief Announcement: On the Limits of Parallelizing Convolutional Neural Networks on GPUs. *Behnam Pourghassemi, Chenghao Zhang, Joo Hwan Lee and Aparna Chandramowlishwaran.*

Brief Announcement: Paging for Multicore Architectures: Lower Bounds and Separation of Paging Strategies. *Helen Xu and Shahin Kamali.*

Brief Announcement: Provable neuromorphic advantages for constrained shortest paths. *James Bradley Aimone, Yang Ho, Ojas D. Parekh, Cynthia Phillips, Ali Pinar, William M. Severa and Yipu Wang.*

Brief Announcement: Reconstructing Trees in Parallel. *Ramtin Afshar, Michael Goodrich, Pedro Matias and Martha Osegueda.*

Brief Announcement: Sparse Tensor Transpositions. *Suzanne Mueller, Peter Ahrens, Stephen Chou, Fredrik Kjolstad and Saman Amarasinghe.*

Brief Announcement: Tracking in Order to Recover: Detectable Recovery of Lock-Free Data Structures. *Hagit Attiya, Ohad Ben-Baruch, Panagiota Fatourou, Danny Hendler and Eleftherios Kosmas.*