

Symposium on Algorithm Engineering and Experiments (ALENEX21)

Held online due to COVID-19

Alexandria, Virginia, USA
10 - 11 January 2021

Editors:

**Martin Farach-Colton
Sabine Storandt**

ISBN: 978-1-7138-2709-2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2021) by SIAM: Society for Industrial and Applied Mathematics
All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact SIAM: Society for Industrial and Applied Mathematics
at the address below.

SIAM
3600 Market Street, 6th Floor
Philadelphia, PA 19104-2688 USA

Phone: (215) 382-9800
Fax: (215) 386-7999

siambooks@siam.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

MULTILEVEL ACYCLIC HYPERGRAPH PARTITIONING	1
<i>Merten Popp, Sebastian Schlag, Christian Schulz, Daniel Seemaier</i>	
SCALABLE SHARED-MEMORY HYPERGRAPH PARTITIONING	16
<i>Lars Gottesbüren, Tobias Heuer, Peter Sanders, Sebastian Schlag</i>	
A PARALLEL PACKED MEMORY ARRAY TO STORE DYNAMIC GRAPHS	31
<i>Brian Wheatman, Helen Xu</i>	
A “LEARNED” APPROACH TO QUICKEN AND COMPRESS RANK/SELECT DICTIONARIES	46
<i>Antonio Boffa, Paolo Ferragina, Giorgio Vinciguerra</i>	
PFP COMPRESSED SUFFIX TREES	60
<i>Christina Boucher, Ondřej Cvacho, Travis Gagie, Jan Holub, Giovanni Manzini, Gonzalo Navarro, Massimiliano Rossi</i>	
ENGINEERING A FAST PROBABILISTIC ISOMORPHISM TEST	73
<i>Markus Anders, Pascal Schweitzer</i>	
AN EXPERIMENTAL STUDY OF ALGORITHMS FOR COMPUTING THE EDGE CONNECTIVITY OF A DIRECTED GRAPH	85
<i>Loukas Georgiadis, Dionysios Kefallinos, Luigi Laura, Nikos Parotsidis</i>	
FAST, EXACT AND SCALABLE DYNAMIC RIDESHARING	98
<i>Valentin Buchhold, Peter Sanders, Dorothea Wagner</i>	
ENGINEERING DATA REDUCTION FOR NESTED DISSECTION	113
<i>Wolfgang Ost, Christian Schulz, Darren Strash</i>	
BOOSTING DATA REDUCTION FOR THE MAXIMUM WEIGHT INDEPENDENT SET PROBLEM USING INCREASING TRANSFORMATIONS	128
<i>Alexander Gellner, Sebastian Lamm, Christian Schulz, Darren Strash, Bogdán Zaválnij</i>	
FULLY DYNAMIC K-CENTER CLUSTERING IN LOW DIMENSIONAL METRICS	143
<i>Gramoz Goranci, Monika Henzinger, Dariusz Leniowski, Christian Schulz, Alexander Svozil</i>	
GROUP-HARMONIC AND GROUP-CLOSENESS MAXIMIZATION – APPROXIMATION AND ENGINEERING	154
<i>Eugenio Angriman, Ruben Becker, Gianlorenzo D'Angelo, Hugo Gilbert, Alexander van der Grinten, Henning Meyerhenke</i>	
SAT-AND-REDUCE FOR VERTEX COVER: ACCELERATING BRANCH-AND-REDUCE BY SAT SOLVING	169
<i>Rick Plachetta, Alexander van der Grinten</i>	
STREAMING SET COVER IN PRACTICE	181
<i>Michael Barlow, Christian Konrad, Charana Nandasena</i>	
COMPUTATION OF LARGE ASYMPTOTICS OF 3-MANIFOLD QUANTUM INVARIANTS	193
<i>Clément Maria, Owen Rouillé</i>	

FAST MINIMAL PRESENTATIONS OF BI-GRADED PERSISTENCE MODULES..... 207
Michael Kerber, Alexander Rolle

Author Index