

2019 IEEE/ACM 10th Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems (Scala 2019)

**Denver, Colorado, USA
18 November 2019**



**IEEE Catalog Number: CFP19A63-POD
ISBN: 978-1-7281-5990-4**

**Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP19A63-POD
ISBN (Print-On-Demand):	978-1-7281-5990-4
ISBN (Online):	978-1-7281-5989-8

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
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2019 IEEE/ACM 10th Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems (Scala) Scala 2019

Table of Contents

Message from the Workshop Chairs .v.....	
Organization .vi.....	

Technical Papers

GPU Acceleration of Communication Avoiding Chebyshev Basis Conjugate Gradient Solver for Multiphase CFD Simulations .1.....	
<i>Yussuf Ali (Japan Atomic Energy Agency, Japan), Naoyuki Onodera (Japan Atomic Energy Agency, Japan), Yasuhiro Idomura (Japan Atomic Energy Agency, Japan), and Takuya Ina (RIKEN Center for Computational Science, Japan)</i>	
Optimization of a Solver for Computational Materials and Structures Problems on NVIDIA Volta and AMD Instinct GPUs .9.....	
<i>Mohammad Zubair (Old Dominion University, USA), James Warner (NASA, USA), and David Wagner (NASA, USA)</i>	
Towards Half-Precision Computation for Complex Matrices: A Case Study for Mixed Precision Solvers on GPUs .17.....	
<i>Ahmad Abdelfattah (University of Tennessee Knoxville USA), Stanimire Tomov (University of Tennessee Knoxville, USA), and Jack Dongarra (University of Tennessee Knoxville, USA)</i>	
Extreme Scale Phase-Field Simulation of Sintering Processes .25.....	
<i>Henrik Hierl (University of Applied Science Karlsruhe, Germany), Johannes Hötzer (University of Applied Science Karlsruhe, Germany), Marco Seiz (Karlsruhe Institute of Technology, Germany), Andreas Reiter (Karlsruhe Institute of Technology, Germany), and Britta Nestler (Karlsruhe Institute of Technology, Germany)</i>	
Generic Matrix Multiplication for Multi-GPU Accelerated Distributed-Memory Platforms over PaRSEC .33.....	
<i>Thomas Herault (University of Tennessee Knoxville, USA), Yves Robert (University of Tennessee Knoxville, USA), George Bosilca (University of Tennessee Knoxville, USA), and Jack Dongarra (University of Tennessee Knoxville, USA)</i>	

Towards Accelerated Unstructured Mesh Particle-in-Cell .42.....
Gerrett Diamond (Rensselaer Polytechnic Institute, USA), Cameron Smith (Rensselaer Polytechnic Institute, USA), and Mark Shephard (Rensselaer Polytechnic Institute, USA)

Parallel Multigrid Methods on Manycore Clusters with IHK/McKernel .52.....
Kengo Nakajima (University of Tokyo, Japan), Balazs Gerofi (RIKEN Center for Computational Science, Japan), Yutaka Ishikawa (RIKEN Center for Computational Science, Japan), and Masashi Horikoshi (Intel Corporation, Japan)

Making Speculative Scheduling Robust to Incomplete Data .62.....
Ana Gainaru (Vanderbilt University, USA) and Guillaume Pallez (University of Bordeaux, France)

Parallel SFC-based mesh partitioning and load balancing .72.....
Ricard Borrell (Barcelona Supercomputing Center, Spain), Gillermo Oyarzun (Barcelona Supercomputing Center, Spain), Damien Dosimont (Barcelona Supercomputing Center, Spain), and Guillaume Houzeaux (Barcelona Supercomputing Center, Spain)

Author Index 79.

