

SPE Large Scale Computing and Big Data Challenges in Reservoir Simulation Conference and Exhibition 2014

**Istanbul, Turkey
15-17 September 2014**

ISBN: 978-1-5108-0731-0

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© (2014) by the Society of Petroleum Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact the Society of Petroleum Engineers
at the address below.

Society of Petroleum Engineers
P. O. Box 833836
Richardson, Texas 75083-3836

Phone: (800) 456-6863
Fax: (972) 952-9435

books@spe.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: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Advanced Solution for Unit Data System Management	1
<i>Rajeev Panda, Vishal Harne</i>	
Automated History Matching Using Combination of Adaptive Neuro Fuzzy System (ANFIS) and Differential Evolution Algorithm	12
<i>Muzammil Hussein Rammay, Abdulazeez Abdulraheem</i>	
Challenges and Opportunities for HPC Cloud in Natural Resources	29
<i>Alberto C. Nogueira, Alecio Binotto, Kiran Mantripragada, Leonardo P. Tizzei, Nicole Sultanum, Marco A. S. Netto</i>	
Cloud-based Remote Visualization of Big Data to Subsurface Exploration	34
<i>Alecio Pedro Delazari Binotti, Nicole Sultanum, Renato Cerquera</i>	
Combining Aggregation and Classical Algebraic Multigrid in the CPR-AMG Linear Solver	40
<i>S. Gratton, P. Jiraneek, X. Vasseur, P. Henon</i>	
Exploring Efficient Alternatives for High Performance Computing Requirements in Coupled Fluid-Flow and Stress Simulations for the Oil & Gas Industry	47
<i>E. Rodrigues, J. M. Serra Segura, P. Vargas Mendoza, R. Ausas, K. Das, U. Mello, M. R. LakshmiKantha</i>	
Induced Fracture Modelling and Its Integration with Pressure Transient Analysis: Study for a Shallow-Water Offshore Field, South-East Asia - Part 2	52
<i>A. Anand, S. G. V. Subrahmanyam</i>	
A Multilevel Preconditioner and Its Shared Memory Implementation for New Generation Reservoir Simulator	67
<i>Baohua Wang, Shuhong Wu, Qiaoyun Li, Xiaobo Li, Hua Li, Chensong Zhang, Jinchao Xu</i>	
A Multiscale Mortar Method and Two-Stage Preconditioner for Multiphase Flow Using a Global Jacobian Approach	75
<i>Benjamin Ganis, Kundan Kumar, Gergina Pencheva, Mary F. Wheeler, Ivan Yotov</i>	
Principles of Big Data Algorithms and Application for Unconventional Oil and Gas Resources	87
<i>Avi Lin</i>	
Reservoir Simulation Prototyping Platform for High Performance Computing	96
<i>S. Jaure, A. Moncorge, R. De Loubens</i>	
Robust Fully-Coupled Multiphase Flow and Geomechanics Simulation	115
<i>Faruk O. Alpak</i>	
Spectral Effects of Large Matrices from Oil Reservoir Simulators on Performance of Scalable Direct Solvers	140
<i>Ahmet Duran, Mehmet Tuncel</i>	
State-of-the-Art Emerging Technology for Technical Data Mining and Analysis	150
<i>Kaushal Kishore, Puneet Sharma, Pooja Khanapurkar</i>	
Author Index	