

58th ISA Power Industry Division (POWID) Symposium 2015

Setting the Standard for Automation

ISA Volume 509

Kansas City, Missouri, USA
7-11 June 2015

ISBN: 978-1-5108-1498-1

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© (2015) by International Society of Automation - ISA
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact International Society of Automation - ISA
at the address below.

International Society of Automation - ISA
67 Alexander Drive
Research Triangle Park, NC 27709 USA

Phone: (919) 549-8411
Fax: (919) 549-8288

info@isa.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

USING METROLOGY FUNDAMENTALS IN CALIBRATION TO DRIVE LONG-TERM VALUE	1
<i>Chuck Boyd</i>	
VOLTAGE REGULATOR AUTO TUNING SPEEDS COMMISSIONING OF THE GENERATOR EXCITATION SYSTEM	6
<i>Richard C. Schaefer, Kiyong Kim</i>	
IN-SITU ELECTROMAGNETIC IMMUNITY TESTING OF NUCLEAR POWER PLANT EQUIPMENT TO SUPPORT WIRELESS TECHNOLOGY IMPLEMENTATION	13
<i>C. J. Kiger, C. L. Lowe</i>	
DYNAMIC SIMULATION AND REAL-TIME OPTIMIZATION OF STEAM POWER PLANTS USING AN OBJECT-ORIENTED LANGUAGE	25
<i>Zhiquan Zhou, Chen Chen, George M. Bollas, Xinsheng Lou, Shizhong Yang, Olutoye Akinjiola, Carl H. Neuschaefer</i>	
INCREASE OVERALL FUEL EFFICIENCY OF POWER PLANTS USING MATHEMATICAL MODELING	44
<i>Patrick Bangert, Jörg-A. Czernitzky, Timo Zitt</i>	
FAILURES OF WIND POWER PLANTS CAN BE PREDICTED SEVERAL DAYS IN ADVANCE	52
<i>Patrick Bangert, Daniel Brenner, Dietmar Tilch, Markus Morschheuser</i>	
FIXED SETPOINTS INTRODUCE ERROR IN LICENSING PROBABILITY	61
<i>Frank Laratta</i>	
INTERPRETATION OF THE LATEST TECHNICAL CODE OF DRUM LEVEL MEASUREMENT SYSTEM IN THERMAL POWER PLANTS OF CHINA	72
<i>Hou Yunhao, Zhang Guobin, Vic Yu, Cui Mingsi</i>	
MEETING NERC'S BAL-003 GENERATOR GOVERNOR FREQUENCY RESPONSE	92
<i>Daniel Lee, Don Lueckenotte</i>	
CONCURRENT DEVELOPMENT OF ECONOMICAL PACKAGING FOR ULTRA- HIGH TEMPERATURE RESISTANCE TEMPERATURE DETECTOR	105
<i>Laurel Frediani, Michael Usrey, Yiping Liu, Benjamin Chorpening, Douglas Straub</i>	
COORDINATION OF LARGE DISTRIBUTED SENSOR NETWORKS USING NOVEL EVOLUTIONARY ALGORITHMS	117
<i>Aida Rahmattalabi, Mitchell Colby, Kagan Tumer</i>	
REDUCED-ORDER OBSERVER AND CONTROLLER DESIGN FOR A 1000MW ULTRA- SUPERCRITICAL UNIT	129
<i>Zhi-Gang Su, Chunjiang Qian, Qian Wang, Zhao Wang</i>	
LEARNING-BASED COORDINATION OF LARGE HETEROGENEOUS DISTRIBUTED SENSOR NETWORKS	141
<i>Mitchell Colby, Kagan Tumer</i>	
LEARNING-BASED CONTROL OF HYBRID FUEL CELL POWER PLANT	153
<i>Andrew Gabler, Mitchell Colby, Kagan Tumer</i>	
CONTROL INITIATIVES TO IMPROVE COAL PULVERIZER AND UNIT DYNAMIC PERFORMANCE UNDER ADVERSE CONDITIONS	165
<i>Don Parker</i>	
EVALUATION OF A STIGMERGIC CONTROLLER ON A PHYSICAL SYSTEM	177
<i>Peter Finzell, Paolo Pezzini, Kenneth Bryden</i>	
PROGRESS ON A RAMAN GAS ANALYZER FOR POWER INDUSTRY APPLICATIONS	187
<i>B. Chorpening, E. Johnson, M. Buric, S. Woodruff</i>	
MULTI-COORDINATION CONTROL STRATEGY PERFORMANCE IN AN ADVANCED POWER SYSTEM	197
<i>Paolo Pezzini, Larry Banta, Kenneth M. Bryden, David Tucker</i>	
INSTALLATION OF SPENT FUEL POOL INSTRUMENTATION FOR EA-12-051 AT D.C. COOK NUCLEAR PLANT	203
<i>Matthew Britten, Pete Vandevisse</i>	
DYNAMIC MODELING AND SIMULATION FOR ALSTOMS SUPERCRITICAL DUAL FUEL- FIRED BOILER AND POWER/DESALINATION COGENERATION PLANT	215
<i>Shizhong Yang, Lionel Lambert, Tracy Midgley, Xinsheng Lou, Carl Neuschaefer</i>	
MODEL PREDICTIVE CONTROL BASED COORDINATED CONTROL SYSTEM IN COAL- FIRED POWER PLANT	229
<i>Xu Fu</i>	

SUSTAINABILITY IN ALARM MANAGEMENT SOLUTIONS	234
<i>Hafiz Banire</i>	
SUSTAINABILITY OF ALARM MANAGEMENT WITH OPERATOR AWARENESS SOLUTIONS	243
<i>Hafiz Banire</i>	
MEASURING FLUID LEVEL AT SUBCRITICAL TO SUPERCRITICAL PRESSURES IN ONCE THROUGH BOILERS	252
<i>Don Labbe, Jeff Klaas, Bernie Begley</i>	
Author Index	