

Process Development Division

Presentations at the 2009 AIChE Spring National Meeting

**Tampa, Florida
26 – 30 April 2009**

ISBN: 978-1-61567-268-4

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© (2009) by AIChE
All rights reserved.

Printed by Curran Associates, Inc. (2009)

For permission requests, please contact AIChE
at the address below.

AIChE
3 Park Avenue
New York, NY 10016-5991

Phone: (203) 702-7660
Fax: (203) 775-5177

www.aiche.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

The Evolution of Process Control - from Hand-Turned Valves to Wireless Networks	1
<i>Pete Sharpe</i>	
A Guide for Signal Processing of Sensors and Transducers	2
<i>Himanshu Dehra</i>	
Process Variability: Causes, Costs, and Cures	11
<i>Douglas C. White</i>	
GC- The to DO and the NOT to DO List for Plant Engineers.....	80
<i>Julie Freelin</i>	
On Electron Beam Additive Manufacturing Process for Titanium Alloys	81
<i>Sharma Renganathan Kal</i>	
On Nanoscale Bolometer to Study Chemical Plumes	82
<i>Sharma Renganathan Kal</i>	
So Many Good Ideas...So Little Time and Money.....	83
<i>Shawna S. Berg</i>	
Methods for Prioritizing Projects --- An Historical Perspective.....	84
<i>Jonathan Worstell, John H. Worstell</i>	
Computational Economy in Process Engineering.....	85
<i>Jed Moyano Bellen</i>	
Using ConcepSys to Optimize Small Project Capital Allocation and Teach Front-End Design.....	86
<i>Adnan A. Siddiqui</i>	
Near-Zero Flaring Study for Chemical Plant Sustainability	87
<i>Qiang Xu, Kuyen Li, Jian Zhang, Chao-Wei Liu, Xiongtao Yang</i>	
Compact Heat Exchange Reactors for Plant Improvements	88
<i>Mark Wood, Zhijun Jia, Larry Stryker</i>	
Surfactant EOR Process Development Fundamentals	94
<i>Joseph B. Powell</i>	
Producing Chemicals for the Enhanced Oil Recovery Market.....	101
<i>Jonathan Worstell, Mike J. Doll</i>	
The Economics of Chemical Enhanced Oil Recovery	102
<i>Shawna S. Berg</i>	
Dynamic Effects for Two-Phase Flows In Porous Media: Temperature Effects On Dynamic Coefficient.....	103
<i>Navraj Hanspal, Diganta Bhushan Das</i>	
New Insights Into the Reaction of Citric Acid with Calcite	120
<i>Mohammed H. AlKhaldi Sr., Hisham Nasr-El-Din, Hemanta Sarma</i>	
Analysis of the Darcy Continuity Equation	128
<i>Jonathan Worstell</i>	
Review of State-of-the-Art in Biomass Gasification Technologies.....	129
<i>Mahesh V. Iyer, Joseph B. Powell</i>	

Investigation of Effects of Coal and Biomass Contaminants on the Performance of Water-Gas-Shift and Fischer-Tropsch Catalysts	130
<i>Gökhan Alptekin, Ambalavanan Jayaraman, Margarita Dubovik, Matthew Schaefer, Robert Amalfitano, Lauren Brickner</i>	
Fuels from Biomass Via High Temperature Water	131
<i>Joseph B. Powell</i>	
Kinetic Modeling of Oxidative-Short-Term Lime Pretreatment of Biomass	135
<i>Rocio Sierra, Mark Holtzapple</i>	
Conversion of Lignocellulose and Other Waste Biomass into Ketones and Hydrocarbon Biofuels: The MixAlco Process, Semi-Works Plant Results.....	136
<i>Cesar B. Granda, Mark T. Holtzapple, Gary W. Luce, Ray H. Griggs</i>	
Recovery of Chemicals Produced by Acidogenic Fermentation	137
<i>Emilie Fockedey, Patrick Gerin, Juray De Wilde</i>	
Solvent Evaluation for Ecogasoline Production Via Two Step Process	138
<i>Alberto J. Baumeister, Sebastiano Giardinella, Katuska C. Marquez</i>	
Shortcut Methods for Scale-up of Separation Processes	146
<i>Joseph B. Powell</i>	
Scale-up Technology with FinTec® Reactor	152
<i>Zhijun Jia, Mark Wood, Larry Stryker</i>	
Efficient Process Development – Non-Technical Aspects.....	156
<i>Cawas A. Cooper</i>	
Efficient Process Development – Technical Aspects.....	157
<i>Cawas A. Cooper</i>	
Biosynthesis of the Acid by a New Technology and Bioreactors.....	158
<i>Fatemeh Abniki, Ehsan Bakhshi, Majid Mosalla</i>	
Sensible Heat Storage by Supporting Phase Change Material, PCM	160
<i>Fatemeh Abniki, Ehsan Bakhshi</i>	
Author Index	