

Nuclear Engineering Division 2021

Held at the 2021 AIChE Annual Meeting

Boston, Massachusetts, USA and Online
7 - 11 November and 15 - 19 November 2021

ISBN: 978-1-7138-5708-2

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 AIChE
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

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

AIChE
120 Wall Street, FL 23
New York, NY 10005-4020

Phone: (800) 242-4363
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: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Molecular Dynamics Simulations of Hydrogen Retention in Single-Crystal and Polycrystalline Tungsten	1
<i>Brandon Laufer, Karl Hammond</i>	
Mechanical Properties of Plasma-Exposed Tungsten.....	2
<i>Asanka Weerasinghe, Brian D. Wirth, Dimitrios Maroudas</i>	
Effects of Elastic Softening and Surface Hole Formation on Surface Morphological Evolution in Plasma-Facing Tungsten	3
<i>Chao-Shou Chen, Dwaipayan Dasgupta, Brian D. Wirth, Dimitrios Maroudas</i>	
Helium Aggregation Near Grain Boundaries in Plasma-Facing Tungsten.....	5
<i>Karl Hammond, Dimitrios Maroudas, Brian D. Wirth</i>	
Soret Diffusion of Helium and Intrinsic Point Defects in Tungsten.....	6
<i>Dimitrios Maroudas, Sophie Blondel, Brian D. Wirth, Enrique Martinez</i>	
A Revision of Classical Force Fields for Tri-N-Butyl Phosphate Molecular Dynamics Simulations	7
<i>Faranak Hatami, Valmor F. de Almeida</i>	
On the Onset of ‘Fuzz’ Formation in Plasma-Facing Materials: A Hierarchical Multiscale Modeling Approach	9
<i>Dwaipayan Dasgupta, Asanka Weerasinghe, Sophie Blondel, Dimitrios Maroudas, Brian D. Wirth</i>	
Reprocessing of Highly Enriched Aluminum-clad Fuels in the Savannah River Site H-Canyon Facility: Past, Present, and Future	11
<i>Tracy S. Rudisill</i>	
Hanford Hlw Sludge Processing in Crossflow Filtration	12
<i>Amy Westesen</i>	
Application of Blind Source Separation and Partial Least-Squares Regression to Quantify Target Species in Complex Nuclear Waste Mixtures	13
<i>Stefani Kocavska, Giovanni Maria Maggioni, Ronald Rousseau, Martha Grover</i>	
Adsorption of Organic Iodides from Vessel Off-Gas (VOG) Streams on Silver-Containing Adsorbents.....	15
<i>Siqi Tang, Seungrag Choi, Alexander Wiechert, Austin Ladshaw, Ziheng Shen, Sotira Yiacoumi, Costas Tsouris, Lawrence L. Tavlarides</i>	
Implementation of a New Defoamer in the Defense Waste Processing Facility to Reduce Batch Processing Time and Improve Safety	16
<i>Dan Lambert, Wesley H. Woodham, Anthony Howe, Matthew S. Williams, Mason Clark</i>	
Water Sorption/Desorption Characteristics in Electrorefiner Salt-Occluded Zeolites.....	17
<i>Allison Harward, Jerry Howard, Claire Decker, Michael Simpson, Krista Carlson, Guy Fredrickson, Tae-Sic Yoo</i>	
Performance Assessment for the Low Activity Waste and Intermediate Level Vaults (LAWV and ILV) at the Savannah River Site.....	18
<i>Frank G. Smith III, Maximilian Gorenssek, L. Larry Hamm</i>	

Performance Assessment for Naval Reactor Component Disposal Areas (NRCDA) at the Savannah River Site.....	19
<i>Thong Hang, L. Larry Hamm</i>	
Continuous-Flow Centrifugal Solid-Liquid Separation for the Recovery of Rare-Earth Elements Containing Particles from Phosphoric Acid Sludge	20
<i>Gyoung Gug Jang, Jong K. Keum, Austin Ladshaw, Patrick Zhang, Costas Tsouris</i>	
Effective Adsorption of Chromium from Tannery Wastewater Using Green Synthesis Nano-Zero Valent Iron (GT-nZVI).....	21
<i>Ahmed S. Mahmoud, M.S. Mahmoud, Ahmed M. Noureldin, Robert W. Peters, Mohamed K. Mostafa</i>	
Enhanced Biodegradability Assessment of Total Petroleum Hydrocarbon By Implementing a Novel Bioaugmentation Strategy of Indigenous Bacterial Consortium	34
<i>Ipsita D. Behera, Asmita Mishra, Ramkrishna Sen, Bhim Charan Meikap</i>	

Author Index