# International Conference on Simulation Technology for Nuclear Power Plants and Systems

(NUCS' 02)

Part of the 2002 Western MultiConference

San Antonio, Texas, USA 27-31 January 2002

ISBN: 978-1-61839-753-9

### Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 www.proceedings.com



Some format issues inherent in the e-media version may also appear in this print version.

#### © 20€GSIMULATION COUNCILS, INC.

Responsibility for the accuracy of all statement in each paper rests solely with the author(s). Statements are not necessarily representative of, nor endorsed by, The Society for Modeling and Simulation International.

Printed by Curran Associates, Inc. (2012)

Permission is granted to photocopy portions of this publication for personal use and for the use of students provided credit is given to the conference and publication. Permission does not extend to other types of reproduction nor to copying for incorporation into commercial advertising nor for any other profit-making purpose. Other publications are encouraged to include 300- to 500-word abstracts or excerpts from any paper contained in this book, provided credits are given to the author and the conference. For permission to publish a complete paper write: The Society for Modeling and Simulation International (SCS), 2598 Fortune Way, Suite I, San Diego, CA 92081, USA.

#### Additional copies of the Proceedings are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 curran@proceedings.com www.proceedings.com/0128.html

or

The Society for Modeling and Simulation International 2598 Fortune Way, Ste I Vista, CA 92081 USA www.scs.org

ISBN: 978-1-61839-753-9 PRINTED IN THE UNITED STATES

## TABLE OF CONTENTS

A New Design for Building Your Own Simulated GE NuMAC Drawer	1
RELAP5-RT Upgrade to the Bohunice V2 Nuclear Power Plant Simulator	4
Operational Experience and Real-time Engineering on first PC-Based Full Scope NPP Simulator KKG Gösgen	8
V. Niedorf, K. Kohler, F. Mueller, A. Wickremetunge	
Simulator Reactor Core Reflections	14
Implementation of a RELAP5 RCS and Secondary Plant Model in a Nuclear Power Plant Training	
Simulator	19
D. Hiltbrand, K. Williams, P. Presby	20
Getting More Value out of Your Third-Party Simulator	28
Motion Simulation Earthquake and Main Turbine High Vibration Malfunctions On the Cooper	
Nuclear Station Simulator	33
R. Conaway, J. Florence	
Nuclear Simulator Saves a Million. Yours Can Too!	41
The Ling Ao Story	51
R. Boire	
Improved Balance of Plant Simulation with ROSE	60
Callaway Plant Simulator Hardware Overview	65
Emulation Technology for a Classroom Simulator	71
TVA Browns Ferry Simulator EHC System Upgrade Using Woodward's NetSim Simulation Package W. Sneed, V. Miller, B. Baker	76
Dominion Energy THOR/S3R Installations	82
J. Borkowski, L. Belblidia, S. Scandpower, C. Stebbings, D. Webb	
Modeling of Fission Products Release Under Severe Accident Conditions Using Fuzzy Reasoning	98
Author Index	