

# NUCLEAR SCIENCE AND ENGINEERING®

VOLUME 100, NUMBER 3, NOVEMBER 1988

## CONTENTS

- v Editorial *D. G. Cacuci*
- vii Foreword: Advances in Reactor Physics, Mathematics, and Computation *Alain Kavenoky*
- TECHNICAL PAPERS**
- 177 Boundary Projection Acceleration: A New Approach to Synthetic Acceleration of Transport Calculations *Marvin L. Adams, William R. Martin*
- 190 Comparison of Three Approximations to the Linear-Linear Nodal Transport Method in Weighted Diamond-Difference Form *Y. Y. Azmy*
- 201 SMART Scattering Matrices for Single Collision Electron Monte Carlo Calculations *W. L. Filippone, S. Woolf*
- 209 The  $S_N$ /Monte Carlo Response Matrix Hybrid Method *W. L. Filippone, R. E. Alcouffe*
- 218 Mixed and Mixed-Hybrid Elements for the Diffusion Equation *F. Coulomb, C. Fedon-Magnaud*
- 226 Parallel Multigrid Algorithms Implemented on Memory-Coupled Multiprocessors *H. Finnemann, J. Volkert*
- 237 On the Application of Runge-Kutta Methods to Transport Calculations *Paul Nelson, James Jeffery*
- 248 The Intelligent Random Number Technique in MCNP *Thomas E. Booth*
- 255 Neutronics Methods for Thermal Radiative Transfer *Edward W. Larsen*
- 260 Two-Dimensional Calculation of Neutron Flux and Power Distribution in the Fuel Assembly of a Light Water Reactor *Zhao Chunlei, Xie Zhongsheng, Yin Banghua*
- 269 Control Rod Heterogeneity Effects in Liquid-Metal Fast Breeder Reactors: Method Developments and Experimental Validation *M. Carta, G. Granget, G. Palmiotti, M. Salvatores, R. Soule*
- 277 Core Design Aspects of SNR-2 *Udo K. Wehmann*

(Continued)

## CONTENTS

(Continued)

- |            |   |   |
|------------|---|---|
| <b>283</b> | Status of Axial Heterogeneous Liquid-Metal Fast Breeder Reactor Core Design Studies and Research and Development    | <i>Hiroshi Nakagawa,<br/>Tatsutoshi Inagaki,<br/>Hiroataka Yoshimi,<br/>Keisho Shirakata,<br/>Yoshio Watari,<br/>Masao Suzuki, Kotaro Inoue,<br/>Takanobu Kamei</i> |
| <b>296</b> | Physics Methods for Calculating Light Water Reactor Increased Performances  | <i>Cl. Vandenberg, A. Charlier</i>  |
| <b>305</b> | Validation of the Pressurized Water Reactor Core Analysis System SEANAP-86 with Measurements in Tests and Operation | <i>C. Ahnert, J. M. Aragonés,<br/>A. Crespo, A. Labay,<br/>J. R. León, A. I. Alvarez</i>  |
| <b>314</b> | Validation of Neutronic Codes for Distorted Core Configurations with the SNEAK-12 Critical Assemblies               | <i>Georg Henneges</i>   |
| <b>324</b> | Testing and Applications of the QPANDA Nodal Model  | <i>K. S. Smith, K. R. Rempe</i>   |
| <b>332</b> | ILLICO-HO: A Self-Consistent Higher Order Coarse-Mesh Nodal Method  | <i>Abderrafi M. Ougouag,<br/>Hrabri L. Rajic</i>  |
| <b>342</b> | CASMO-3: New Features, Benchmarking, and Advanced Applications  | <i>Malte Edenius, Ake Ahlin</i>   |
| <b>352</b> | APOLLO II: A User-Oriented, Portable, Modular Code for Multigroup Transport Assembly Calculations                   | <i>Richard Sanchez,<br/>Jacques Mondot,<br/>Žarko Stankovski,<br/>Antoine Cossic,<br/>Igor Zmijarevic</i>   |
| <b>363</b> | The DIT Nuclear Fuel Assembly Physics Design Code   | <i>Alf Jonsson</i>  |