

International Conference on the Physics of Reactors 2008

(PHYSOR 08)

**Interlaken, Switzerland
14-19 September 2008**

Volume 1 of 4

Editors:

**Rakesh Chawla
Vinh N. Dang**

Konstantin Mikityuk

ISBN: 978-1-61782-121-9

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© (2008) by Paul Scherrer Institut (PSI)
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact Paul Scherrer Institut (PSI)
at the address below.

Paul Scherrer Institut (PSI)
5232 Villigen PSI
Switzerland

Phone: 41 56 310 21 11
Fax: 41 56 310 21 99

info@psi.ch

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

Volume 1

KEYNOTE ADDRESSES

NUCLEAR ENERGY RESEARCH IN EUROPE	1
<i>R. Schenkel, D. Haas</i>	
NUCLEAR ENERGY AND GLOBAL WARMING.....	8
<i>H. F. McFarlane</i>	
PERSPECTIVES FOR NUCLEAR ENERGY IN JAPAN AND ASIA	16
<i>K. Matsui</i>	
SWISS ELECTRICITY PRODUCTION INTO THE FUTURE.....	22
<i>W. Steinmann</i>	

TECHNICAL PLENARY LECTURES

REACTOR ANALYSIS: ADVANCES AND NEW NEEDS

COMPUTATIONAL METHODS AND DATA FOR NEUTRON TRANSPORT: RECENT ADVANCES AND PERSPECTIVES	24
<i>P. Ravetto</i>	
NUCLEAR POWER PLANT ANALYSIS AT THE NUCLEAR REGULATORY COMMISSION	31
<i>P. B. Lyons</i>	
ADVANCES IN REACTOR CORE FUEL MANAGEMENT	35
<i>H. D. Berger</i>	
MULTI-PHYSICS AND LWR TRANSIENT ANALYSIS	45
<i>E. Royer</i>	
ANALYSIS OF ADVANCED FUEL CYCLE STRATEGIES: NEW INSIGHTS	53
<i>T. Taiwo, R. Hill</i>	

EXPERIMENTAL FACILITIES: EXPERIENCE, RESULTS, AND NEEDS

NUCLEAR FACILITIES IN THE OECD COUNTRIES: STATUS AND OUTLOOK.....	64
<i>P. D'Hondt</i>	
EXPERIMENTAL REACTOR PHYSICS PERSPECTIVES IN FRANCE.....	70
<i>G. Bignan, A. Zetta, P. Fougeras, R. Jacqmin, J. C. Bosq, J. C. Klein, A. Lyoussi, F. Mellier, P. Blaise, A. Chabre, P. Sacristan</i>	
STATUS AND OUTLOOK FOR IRRADIATION TESTING	78
<i>W. Wiesnack</i>	
SUBSTANTIATION OF PHYSICAL CONCEPTS OF FAST REACTORS IN RUSSIA: EXPERIENCE AND PROSPECTS.....	89
<i>P. N. Alekseev, B. A. Vasiliev, M. V. Kormilitsyn, A. V. Lopatkin, E. F. Seleznev, Yu. S. Khomyakov, A. M. Tsybulia, L. V. Tocheny</i>	
NUCLEAR FACILITIES IN THE USA: STATUS AND OUTLOOK	99
<i>P. J. Finck</i>	

TRACK 1. NUCLEAR DATA

15B1-01. NUCLEAR DATA MEASUREMENTS AND EVALUATIONS

MINOR ACTINIDES NEUTRON DATA: ADVANCED ANALYSIS	100
<i>V. Maslov</i>	
DECAY STUDIES OF MINOR ACTINIDE NUCLIDES, AND FUTURE OPPORTUNITIES FOR IMPROVING THE DECAY DATA OF NEUTRON-RICH FISSION PRODUCTS	108
<i>F. G. Kondev, I. Ahmad, M. P. Carpenter, C. J. Chiara, J. P. Greene, R. V. F. Janssens, M. A. Kellett, C. J. Lister, A. L. Nichols, G. Savarda, D. Seweryniaka, S. Zhua</i>	
NEUTRON CROSS SECTION MEASUREMENTS AT GELINA TO IMPROVE THE CONSISTENCY BETWEEN MICROSCOPIC DATA AND INTEGRAL QUANTITIES	116
<i>S. Kopecky, A. Borella, K. Guber, I. Ivanov, C. Mihailescu, C. Massimi, M. Moxon, C. Porcelli, P. Schillebeeckx, P. Siegler, I. Sirakov, A. Trkov</i>	
NEUTRON RESONANCE PARAMETERS OF ^{55}Mn FROM REICH-MOORE ANALYSIS OF RECENT EXPERIMENTAL NEUTRON TRANSMISSION AND CAPTURE CROSS SECTIONS.....	124
<i>H. Derrien, L. C. Leal, N. M. Larson, K. Guber, D. Wiarda, G. Arbanas</i>	
ACTINIDE ENDF/BVII CROSS SECTION EVALUATIONS AND VALIDATION TESTING	131
<i>M. B. Chadwick, R. C. Little, T. Kawano, P. Talou, D. Viera, M. Jandel, T. A. Bredeweg, M. C. White, A. P. Tonchev, J. A. Becker</i>	

15B2-01. COVARIANCE DATA

IMPACT OF THE ^{235}U COVARIANCE DATA IN BENCHMARK CALCULATIONS.....	139
<i>L. Leal, D. Mueller, G. Arbanas, D. Wiarda, H. Derrien</i>	
EVALUATION OF THE COVARIANCE MATRIX OF THE ^{235}U NEUTRON INDUCED PROMPT FISSION SPECTRUM.....	146
<i>I. Kodeli, A. Trkov, R. Capote</i>	
EXTENSIVE SET OF LOW-FIDELITY CROSS SECTIONS COVARIANCES IN FAST NEUTRON REGION.....	154
<i>M. T. Pigni, M. Herman, P. Obložinský</i>	
PRODUCTION AND PROCESSING OF COVARIANCE DATA FOR NUCLEAR APPLICATIONS BY THE WORKING PARTY ON INTERNATIONAL EVALUATION NUCLEAR DATA COOPERATION.....	162
<i>M. E. Dunn, M. Herman</i>	
IMPACT OF DIFFERENT CORRELATION STRUCTURES IN CROSS-SECTION COVARIANCE MATRICES ON THE INVENTORY AND INVENTORY-RELATED PARAMETERS.....	170
<i>N. García-Herranz, O. Cabellos, J. Sanz, J. Juan</i>	

15B3-01. METHODS FOR DATA EVALUATION AND PROCESSING

STATISTICAL THEORY FOR CALCULATING ENERGY SPECTRA OF BETA-DELAYED NEUTRONS.....	177
<i>T. Kawano, P. Möller, W. B. Wilson</i>	
PARAMETER TUNING BY INTEGRAL RESPONSES AND RESPONSE-PARAMETER CORRELATIONS IN DATA ADJUSTMENT.....	183
<i>J. Wagschal, Y. Yeivin</i>	
CALCULATION OF THE THERMAL NEUTRON SCATTERING CROSS SECTION OF ALPHA QUARTZ	191
<i>B. Hehr, A. Hawari</i>	
COMBINING MC²-2 AND SCALE CROSS SECTION METHODS TO PROCESS NUCLEAR DATA FOR GNEP	198
<i>M. L. Williams, J. C. Gehin, W. S. Yang</i>	

15P1-01. NUCLEAR DATA

A SENSITIVITY AND UNCERTAINTY ANALYSIS OF THE KEFF VALUE FOR FAST AND THERMAL BENCHMARKS WITH COVARIANCE DATA	204
<i>C.-S. Gil, L. Leal, D. H. Kim, Y.-O. Lee</i>	
PROGRESS IN EVALUATED NUCLEAR DATA FOR TUNGSTEN WITH COVARIANCES	211
<i>A. Trkov, R. Capote, I. Kodeli, L. Leal</i>	
NEW APPROXIMATIONS FOR THE DOPPLER BROADENING FUNCTION APPLIED TO THE CALCULATION OF RESONANCE SELF-SHIELDING FACTORS	219
<i>D. A. Palma, A. C. Gonçalves, A. S. Martinez, F. C. Silva</i>	
ANGULAR ANISOTROPY REPRESENTATION BY PROBABILITY TABLES.....	226
<i>P. Ribon, M. Coste-Delclaux, C. Jouanne, C. M. Diop</i>	
GALILEE: A NUCLEAR DATA PROCESSING SYSTEM FOR TRANSPORT, DEPLETION AND SHIELDING CODES.....	234
<i>M. Coste-Delclaux</i>	
ADAPTIVE ENERGY MESH CONSTRUCTOR FOR MULTIGROUP LIBRARIES OF THE DETERMINISTIC TRANSPORT CODE APOLLO2.....	241
<i>P. Mosca, C. Mounier</i>	
NEW NEUTRON-INDUCED CROSS-SECTION MEASUREMENTS FOR IMPROVED NUCLEAR DATA	249
<i>K. H. Guber, P. E. Koehler, D. Wiarda, J. A. Harvey, T. S. Bigelow, C. Ausmus, D. R. Brashear, J. A. White</i>	
IMPROVED EVALUATIONS OF N+^{237}NP CROSS SECTIONS AND THEIR VALIDATION WITH CRITICAL ASSEMBLY CALCULATIONS BY MCNP	255
<i>R. Brewer, S. Mashnik, T. Kawano, B. Lee, R. Little, R. Macfarlane, P. Talou, P. Young, M. White</i>	
DEVELOPMENT AND TESTING OF A REVISED ENDF/B-VII CAPTURE CROSS SECTION FOR ^{113}CD	260
<i>R. D. Mosteller, R. E. Macfarlane, S. F. Mughabghab, S. S. Kim</i>	
IMPACT OF NEWLY-MEASURED GADOLINIUM CROSS SECTIONS ON BWR FUEL ROD REACTION RATE DISTRIBUTIONS	266
<i>F. Jatuff, G. Perret, M. Murphy, P. Grimm, R. Seiler, R. Chawla</i>	
EVALUATION OF PROMPT NEUTRON SPECTRA FOR AMERICIUM ISOTOPES BY MULTIMODAL MADLAND-NIX MODEL	273
<i>T. Ohsawa, H. Taninaka</i>	
IMPROVED REACTOR CORE CALCULATIONS WITH JEFF-3.1 DATA	280
<i>R. Jacqmin, J. Tommasi, D. Bernard, A. Santamarina</i>	
GENERATION AND PRELIMINARY TESTING OF ENEA-BOLOGNA BUGLE-TYPE GROUP LIBRARIES BASED ON JEFF-3.1 AND ENDF/B-VII.0 NUCLEAR DATA FOR LWR SHIELDING AND PRESSURE VESSEL DOSIMETRY	286
<i>M. Pescarini, V. Sinitsa, R. Orsi</i>	

IMPROVEMENT EFFECT OF NEUTRONICS DESIGN ACCURACY BY CONDUCTING MA-LOADED CRITICAL EXPERIMENTS IN J-PARC	296
<i>T. Sugawara, T. Sasa, H. Oigawa</i>	
THERMAL SCATTERING DATA AND CRITICALITY SAFETY	304
<i>W. Haeck, N. Leclaire</i>	
ENDF/B-VII CONTINUOUS ENERGY LIBRARY VERIFICATION.....	311
<i>R. Blomquist</i>	
EFFECTS OF LEAD CROSS SECTION UNCERTAINTIES ON THE RBEC-M FAST REACTOR BENCHMARK RESULTS.....	317
<i>M. Miloševic, E. Greenspan, J. Vujić</i>	
AN ITERATION SCHEME TO IMPROVE THE ACCURACY OF THE PROBABILITY TABLE GENERATED BY KEEPING THE INTEGER-ORDER MOMENTS OF CROSS SECTION PRESERVED FOR RESONANCE SELF-SHIELDING CALCULATIONS	325
<i>A. Kumar</i>	
INTERNATIONAL EFFORTS TO MEASURE, MODEL AND EVALUATE NUCLEAR DATA FOR THE MINOR ACTINIDES.....	332
<i>A. Mengoni, R. Capote, M. A. Kellett, A. L. Nichols</i>	
DEVELOPMENT OF A TEST SUITE FOR NUCLEAR DATA VERIFICATION AND VALIDATION	339
<i>B. Triplett, M. White, S. Anghaie</i>	
GRAPHITE THERMAL NEUTRON SCATTERING CROSS SECTION CALCULATIONS INCLUDING COHERENT 1-PHONON EFFECTS	347
<i>A. I. Hawari, I. I. Al-Qasir</i>	
NEW NEUTRON, PROTON, AND S(A,B) MCNP DATA LIBRARIES BASED ON ENDF/B-VII.....	354
<i>R. C. Little, H. R. Trellue, R. E. Macfarlane, A. C. Kahler, M. B. Lee, M. C. White</i>	
NEUTRON CROSS SECTION LIBRARIES FOR CRYOGENIC AROMATIC MODERATOR MATERIALS	361
<i>F. Cantargi, J. R. Granada, M. M. Shaffoni</i>	
OPTIMAL CHOICE OF DATA ON DELAYED NEUTRONS	368
<i>B. Abramov, Y. Matveev</i>	

16B1-01. VALIDATION AND APPLICATION OF EVALUATED LIBRARIES

ENDF/B-VII.0, ENDF/B-VI, JEFF-3.1, AND JENDL-3.3 RESULTS FOR THE MCNP CRITICALITY VALIDATION SUITE AND OTHER CRITICALITY BENCHMARKS	376
<i>R. D. Mosteller</i>	
DEVELOPMENT OF JENDL ACTINOID FILE.....	384
<i>O. Iwamoto, T. Nakagawa, N. Otuka, S. Chiba, K. Okumura, G. Chiba</i>	
IMPACT OF ENDF/B-VII.0 FOR AECL APPLICATIONS	392
<i>K. S. Kozier, D. V. Altiparmakov</i>	
SENSITIVITY ANALYSIS OF CHARACTERISTICS OF SPENT MIXED OXIDE FUEL	399
<i>N. Hagura, T. Yoshida</i>	
UNCERTAINTY EVALUATION OF REACTIVITY COEFFICIENTS FOR A LARGE ADVANCED SFR CORE DESIGN	405
<i>W. Khamakhem, G. Rimpault</i>	

TRACK 2. TRANSPORT THEORY

15C1-02. TRANSPORT METHODS – I

RESOLUTION OF DOUBLE HETEROGENEITY IN DIRECT TRANSPORT CALCULATION EMPLOYING SUBGROUP METHOD AND METHOD OF CHARACTERISTICS	413
<i>L. Pogosbeyan, G. Y. Kim, K. S. Kim, J. Y. Cho, H. G. Joo</i>	
TRACKING ON PERIODIC LATTICES FOR THE METHOD OF CHARACTERISTICS	420
<i>F. Févotte, S. Santandrea, R. Sanchez</i>	
AN OPTIMAL MULTILEVEL TECHNIQUE FOR THE DPN EQUATIONS IN CELL-TYPE GEOMETRIES	427
<i>S. Santandrea</i>	
APPLICATION OF HIGH-ORDER DIAMOND DIFFERENCING SCHEMES TO 3D CARTESIAN GEOMETRIES	433
<i>N. Martin, A. Hébert</i>	
MULTILEVEL TRANSPORT SOLUTION OF LWR REACTOR CORES	442
<i>J. I. Marquez Damian, C. R. E. De Oliveira, H. Park</i>	

15C2-02. TRANSPORT METHODS – II

A CLOSED-FORM SOLUTION FOR THE TWO-DIMENSIONAL TRANSPORT EQUATION BY THE LTS_n NODAL METHOD IN THE RANGE OF COMPTON EFFECT	449
<i>B. D. A. Rodriguez, M. T. De Vilhena, G. Hoff</i>	
ANALYTICAL STABILITY ANALYSIS OF COARSE-MESH FINITE DIFFERENCE METHOD	456
<i>E. Masiello</i>	

HYBRID S_N LAPLACE TRANSFORM METHOD FOR SLAB LATTICE CALCULATIONS.....	465
<i>C. F. Segatto, M. T. Vilhena, J. H. Zani, R. C. Barros</i>	
XUTHOS: A DISCONTINUOUS GALERKIN TRANSPORT SOLVER FOR NEWT BASED ON UNSTRUCTURED TRIANGULAR MESHES	470
<i>Y. Wang, J. Ragusa, M. Dehart</i>	
A POSTERIORI ERROR ESTIMATOR AND AMR FOR DISCRETE ORDINATES NODAL TRANSPORT METHODS.....	477
<i>J. I. Duo, Y. Y. Azmy, L. T. Zikatanov</i>	

15C3-02. TRANSPORT METHODS – III

SECOND-ORDER REACTIVITY WORTH ESTIMATES USING AN OFF-THE-SHELF MULTIGROUP DISCRETE ORDINATES TRANSPORT CODE	485
<i>J. A. Favorite</i>	
A NODAL COLLOCATION APPROXIMATION FOR THE MULTIDIMENSIONAL P_L EQUATIONS	493
<i>M. Capilla, C. F. Talavera, D. Ginestar, G. Verdú</i>	
HIGH RESOLUTION TIME INTEGRATION FOR S_N RADIATION TRANSPORT	501
<i>G. Thoreson, R. G. McClarren, J. H. Chang</i>	
A KRYLOV SUBSPACE METHOD TO CALCULATE k- AND α-EIGENVALUES.....	508
<i>Y. Cao, J. C. Lee</i>	

15P1-02. TRANSPORT THEORY

TWO-NODE SEMI-ANALYTIC NODAL METHOD SOLUTION FOR AXIAL P₃ FORMULATION IN WHOLE CORE TRANSPORT CALCULATION	516
<i>D. W. Lee, H. G. Joo</i>	
A RESPONSE MATRIX FORMULATION OF MULTIDIMENSIONAL TRANSPORT PROBLEMS.....	524
<i>S. Canepa, R. Van Geemert, D. Porsch, S. Dulla, P. Ravetto</i>	
PARALLEL METHOD OF CHARACTERISTICS ON UNSTRUCTURED MESHES FOR THE UNIC CODE	531
<i>C. Rabiti, M. A. Smith, Y. W. Sik, D. Kaushik, G. Palmiotti</i>	
A VARIED-ORDER SWEEPING TECHNIQUE FOR THE COARSE MESH TRANSPORT METHOD IN COMET	539
<i>D. Zhang, F. Rahnema</i>	
DEVELOPMENT AND VERIFICATION OF A HIGH PERFORMANCE MULTI-GROUP SP₃ TRANSPORT CAPABILITY IN THE ARTEMIS CORE SIMULATOR.....	545
<i>R. Van Geemert</i>	
A QUASI-STATIC TRANSPORT MODULE USING THE DRAGON CODE	553
<i>P. Picca, S. Dulla, E. Mund, P. Ravetto, G. Marleau</i>	
A MULTI-SCALE QUASI-STATIC METHOD FOR THE NEUTRONIC KINETICS.....	559
<i>S. Chauvet, A. Nachaoui, A.-M. Baudron, J.-J. Lautard</i>	
ON THE CONVERGENCE OF THE REBALANCE METHODS FOR TRANSPORT EQUATION FOR EIGENVALUE PROBLEMS.....	566
<i>S. G. Hong, K. S. Kim, J. S. Song</i>	
DEVELOPMENT OF NEUTRAL PARTICLE TRANSPORT CODE ATES3 & FURTHER STUDIES ON TRANSPORT SYNTHETIC ACCELERATION.....	576
<i>A. Gupta, R. S. Modak, V. Kumar, S. V. G. Menon</i>	

16C2-02. TRANSPORT METHODS – IV

EXTENSION OF THE 1D FOUR-GROUP ANALYTIC NODAL METHOD TO FULL MULTIGROUP.....	582
<i>B. D. Ganapol, D. W. Nigg</i>	
THREE-DIMENSIONAL NEUTRON TRANSPORT WITH NOVEL LOCAL–GLOBAL COUPLING	589
<i>E. E. Lewis, M. A. Smith, G. Palmiotti</i>	
INTERIOR BEAM SEARCHLIGHT SEMI-ANALYTICAL BENCHMARK.....	595
<i>B. D. Ganapol, D. E. Kornreich</i>	
NEUTRON TRANSPORT IN ONE DIMENSIONAL SPHERICAL GEOMETRY WITH STOCHASTIC FISSILE SPHERES.....	604
<i>Q. Liu, H. Wu, L. Cao</i>	
THE NEUTRON TRANSPORT SOLUTION USING DAUBECHIES' WAVELET DISCRETIZATION IN THE ANGULAR DOMAIN.....	612
<i>Y. Zheng, H. Wu, L. Cao</i>	

16P1-02. TRANSPORT THEORY

NEUTRON TRANSPORT SOLVER PARALLELIZATION USING A DOMAIN DECOMPOSITION METHOD	619
<i>S. Van Criekingen, F. Nataf, P. Havé</i>	

VERIFICATION OF THE INL/COMBINE7 NEUTRON ENERGY SPECTRUM CODE	626
<i>B. D. Ganapol, W. Y. Yoon, D. W. Nigg</i>	
NEW CAPABILITIES OF THE LATTICE CODE WIMS-AECL	635
<i>D. Altiparmakov</i>	
2D CORE CALCULATIONS FOR VVER-1000 WITH APOLLO2	643
<i>G. Todorova, N. Petrov, N. P. Kolev, P. Bellier, H. Golfier</i>	
OPTIMIZATION OF THE EXTRAPOLATED-ITERATIVE METHOD FOR THE MULTISLAB TRANSPORT PROBLEM	651
<i>P. Picca, R. Furfarò, B. D. Ganapol</i>	
APPLICATIONS OF CONVERGENCE ACCELERATION TO PARTICLE TRANSPORT IN SPHERICAL GEOMETRY	660
<i>P. Picca, B. D. Ganapol, R. Furfarò</i>	

TRACK 3. MONTE CARLO DEVELOPMENTS

15D1-03. MONTE CARLO REACTOR ANALYSIS

THE IMPACT OF ^{238}U RESONANCE ELASTIC SCATTERING APPROXIMATIONS ON THERMAL REACTOR DOPPLER REACTIVITY	669
<i>D. Lee, K. Smith, J. Rhodes</i>	
ON THE FEASIBILITY OF A HOMOGENISED MULTI-GROUP MONTE CARLO METHOD IN REACTOR ANALYSIS	679
<i>J. Leppänen</i>	
MCNP ANALYSIS OF GENERIC CONFIGURATIONS IN THE CONTEXT OF THE LIFE@PROTEUS EXPERIMENTS	687
<i>O. P. Joneja, G. Perret, P. Grimm, F. Jatuff, R. Chawla</i>	
SCOUTING THE FEASIBILITY OF MONTE CARLO REACTOR DYNAMICS SIMULATIONS	695
<i>D. Legrady, J. E. Hoogenboom</i>	
AN INTEGRATED THERMAL HYDRAULIC FEEDBACK METHOD FOR MONTE CARLO REACTOR CALCULATIONS	700
<i>D. P. Griesheimer, D. F. Gill, J. W. Lane, D. L. Aumiller</i>	

15D2-03. MONTE CARLO METHODS – I

DOMINANCE RATIO CALCULATIONS WITH MCNP	708
<i>B. Nease, F. Brown, T. Ueki</i>	
REAL VARIANCE ESTIMATION IN MONTE CARLO WIELANDT CALCULATIONS	715
<i>H. J. Shim, C. H. Kim</i>	
A PROPOSED KERNEL DENSITY ESTIMATOR METHOD FOR MONTE CARLO EIGENVALUE CALCULATIONS	723
<i>K. Banerjee, W. R. Martin</i>	
AN ARBITRARY HIGH ORDER NON-EQUALLY-PROBABLE STEP FUNCTION REPRESENTATION FOR MULTIGROUP MONTE CARLO	731
<i>L. Mao</i>	
MONTE CARLO SPACE-TIME REACTOR KINETICS METHOD AND ITS VERIFICATION WITH TIME-DEPENDENT SN METHOD	739
<i>S. Yun, J. W. Kim, N. Z. Cho</i>	

15D3-03. MONTE CARLO METHODS FOR HTRS

IMPROVEMENT OF THE RESONANCE SCATTERING TREATMENT IN MCNP IN VIEW OF HTR CALCULATIONS	747
<i>B. Becker, R. Dagan, C. H. M. Broeders, G. H. Lohnert</i>	
APPLICATION OF CHORD LENGTH SAMPLING TO VHTR UNIT CELL ANALYSIS	755
<i>Wei Ji, W. R. Martin</i>	
CRITICALITY CALCULATIONS ON PEBBLE-BED HTR-PROTEUS CONFIGURATION AS A VALIDATION FOR THE PSEUDO-SCATTERING TRACKING METHOD IMPLEMENTED IN THE MORET 5 MONTE CARLO CODE	761
<i>B. Forestier, J. Miss, F. Bernard, A. Dorval, O. Jacquet, B. Verboomen</i>	
ANALYSIS OF RANDOM-LOADING HTR-PROTEUS CORES WITH CONTINUOUS ENERGY MONTE CARLO CODE BASED ON A STATISTICAL GEOMETRY MODEL	769
<i>I. Murata, H. Miyamatu</i>	

15P1-03. MONTE CARLO METHODS

VALIDATION OF ATR FISSION POWER DEPOSITION FRACTION IN HEU AND LEU FUEL PLATES	777
<i>G. S. Chang</i>	

BWR FUEL ASSEMBLIES PHYSICS ANALYSIS UTILIZING 3D MCNP MODELING	782
<i>R.-T. Chiang, J. B. Williams, K. S. Folk</i>	
EFFICIENCY OF THE DELTA-TRACKING TECHNIQUE FOR MONTE CARLO CALCULATIONS APPLIED TO NEUTRON-TRANSPORT SIMULATIONS OF THE ADVANCED CANDU REACTOR DESIGN	788
<i>B. Arsenault, R. Le Tellier, A. Hébert</i>	
UNCERTAINTY PROPAGATION IN MONTE CARLO DEPLETION ANALYSIS	796
<i>H. J. Shim, H. J. Park, H. G. Joo, Y. Kim, C. H. Kim</i>	
BENCHMARK OF ALEPH AND MONTEBURNS ON FRENCH POST-IRRADIATION EXPERIMENTS	806
<i>C. Trakas, F. Thibout, S. Thureau, B. Verboomen, G. Van den Eynde</i>	
IMPLEMENTATION OF MULTI-GROUP CROSS-SECTION METHODOLOGY IN BGCore MC-DEPLETION CODE	814
<i>E. Fridman, E. Shwageraus, A. Galperin</i>	
MCNPX 2.6 DEPLETION METHOD ENHANCEMENTS AND TESTING	822
<i>M. Fensin, J. Hendricks, S. Anghaie</i>	
IMPROVED ESTIMATION OF THE VARIANCE IN MONTE CARLO CRITICALITY CALCULATIONS	830
<i>J. E. Hoogenboom</i>	
PROBABILITY DENSITY ESTIMATION USING NEURAL NETWORKS IN MONTE CARLO CALCULATIONS	837
<i>H. J. Shim, J. Y. Cho, J. Seung Song, C. Hyo Kim</i>	

Volume 2

BIDIRECTIONAL CONVERSION BETWEEN CAD MODEL AND TRIPOLI MODEL: AN EXTENDING FUNCTION OF MCAM	843
<i>L. Lu, Q. Zeng, J. Zhang, Y. Li, H. Chang, A. Ding, Y. Wu</i>	
RECENT R&D AROUND THE MONTE-CARLO CODE TRIPOLI-4 FOR CRITICALITY CALCULATION	848
<i>F.-X. Hugot, Y. K. Lee, F. Malvagi</i>	
ON THE USE OF IMPORTANCE FACTORS FROM MONTE CARLO CALCULATIONS FOR EFFICIENT FAST NEUTRON FLUENCE PREDICTION	856
<i>A. Vasiliev, H. Ferroukhi, E. Kolbe, M. A. Zimmermann</i>	

17E1-03. MONTE CARLO METHODS – II

INVESTIGATING THE MINIMUM ACHIEVABLE VARIANCE IN A MONTE CARLO CRITICALITY CALCULATION	864
<i>S. Christoforou, J. E. Hoogenboom</i>	
A GENERALIZED KPSS TEST FOR STATIONARITY DETECTION IN MONTE CARLO EIGENVALUE PROBLEMS	871
<i>M. Wenner, A. Haghigat</i>	
ARNOLDI'S METHOD OF MINIMIZED ITERATIONS FOR MONTE CARLO CRITICALITY CALCULATIONS	878
<i>J. L. Conlin, J. P. Holloway</i>	
APPROXIMATE ESTIMATION OF EFFECTIVE DELAYED NEUTRON FRACTION WITH CORRELATED SAMPLING METHOD	886
<i>Y. Nagaya, K. Nakajima</i>	
FIRST VALIDATION OF THE NEW CONTINUOUS ENERGY VERSION OF THE MORET5 MONTE CARLO CODE	893
<i>J. Miss, O. Jacquet, F. Bernard, B. Forestier, W. Haeck, Y. Richet</i>	

TRACK 4. CORE ANALYSIS METHODS

15A1-04. LATTICE PHYSICS CALCULATIONS

AN OPTIMIZED ULTRA-FINE ENERGY GROUP STRUCTURE FOR NEUTRON TRANSPORT CALCULATIONS	901
<i>H. Huria, M. Ouisloumen</i>	
EQUIVALENCE OF CONTROL ROD MODEL IN HIGH TEMPERATURE GAS-COOLED REACTOR	908
<i>Z. Xuhua, L. Fu, W. Dengying, Y. Jianqiu, W. Jinfeng, G. Jiong, J. Xingqing</i>	
BURNUP DEPENDENCE OF COOLANT VOID REACTIVITY FOR ACR-1000 CELL	914
<i>R. Le Tellier, G. Marleau, A. Hébert, D. Roubstov, D. Altiparmakov, D. Irish</i>	
RECENT ADVANCES IN THE HELIOS-2 LATTICE PHYSICS CODE	921
<i>C. A. Wemple, H-N. M. Gheorghiu, R. J. J. Stamm'ler, E. A. Villarino</i>	
REFINEMENT OF THE SANTAMARINA-HFAIEDH ENERGY MESH BETWEEN 22.5 EV AND 11.4 KEV	929
<i>A. Hébert, A. Santamarina</i>	

15A2-04. CORE ANALYSIS – I

QUALIFICATION OF NEXUS/ANC NUCLEAR DESIGN SYSTEM FOR PWR ANALYSES	939
<i>L. Mayhue, R. Milanova, H. Huria, B. Zhang, E. Müller, F. Franceschini, M. Ouisloumen, P. F. Guimaraes</i>	
EMBEDDED LATTICE TRANSPORT CALCULATIONS BASED ON PARAGON-NEM CODE SYSTEM FOR REACTOR CORE ANALYSIS	945
<i>B. Ivanov, E. Müller, M. Ouisloumen, K. Ivanov</i>	
LEAKAGE DEPENDENT SPH FACTOR FOR PWR WHOLE CORE TRANSPORT CALCULATION	954
<i>T. Takeda, K. Kirimura, Y. Fujita, K. Yamaji, D. Sato, H. Matsumoto</i>	
EXTENSION OF THE SIMMER CROSS-SECTION PROCESSING SCHEME FOR SAFETY STUDIES OF THERMAL REACTORS	960
<i>F. Gabrielli, A. Rineiski, W. Maschek, G. Biaut</i>	
PARAMETRIC STUDY OF THE INFLUENCE OF HETEROGENEOUS BORON CONCENTRATION AND COOLANT DENSITY ON CROSS SECTION GENERATION IN BWRS	966
<i>V. Larsson, C. Demazière, P. F. Guimaraes</i>	

15A3-04. CORE ANALYSIS – II

DEVELOPMENT OF A PROTOTYPE PIN-BY-PIN FINE MESH CALCULATION CODE FOR BWR CORE ANALYSIS	974
<i>K. Tada, A. Yamamoto, S. Kosaka, G. Hirano, Y. Yamane</i>	
STUDY ON KINETIC TRANSPORT SOLVERS FOR PIN-BY-PIN CORE CALCULATION	981
<i>T. Endo, M. Tatsumi</i>	
THE TIME-DEPENDENT 3D DISCRETE ORDINATES CODE TORT-TD WITH THERMAL-HYDRAULIC FEEDBACK BY ATHLET MODELS	988
<i>A. Seubert, K. Velkov, S. Langenbuch</i>	
ESTIMATION OF THE FAST NEUTRON FLUENCE AT CONTROL ROD TIPS USING A 3-D DIFFUSION/2-D TRANSPORT CALCULATION SCHEME	997
<i>H. Ferroukhi, J.-M. Hollard, M. A. Zimmermann, R. Chawla</i>	

15P1-04. CORE ANALYSIS

PENBURN – A 3-D ZONE-BASED DEPLETION/BURNUP SOLVER	1005
<i>K. Manalo, T. Plower, M. Rowe, T. Mock, G. E. Sjoden</i>	
FEASIBILITY OF EMBEDDING NODAL HOMOGENIZATION IN NEXT GENERATION METHODS FOR 3D PIN-BY-PIN CORE SIMULATION	1013
<i>S. Zhang, C. Tang, H. Huang, Y. A. Chao</i>	
CROSS SECTION HOMOGENIZATION ANALYSIS FOR A SIMPLIFIED CANDU REACTOR	1020
<i>J. Pounders, F. Rahmema, S. Mosher, D. Serghiuta, P. Turinsky, H. Sarsour</i>	
DEVELOPMENT OF CORE ANALYSIS METHOD USING THREE-DIMENSIONAL DIRECT RESPONSE MATRIX.....	1031
<i>T. Hino, K. Ishii, T. Mitsuhashi, M. Aoyama</i>	
IN DEPTH ANALYSIS OF THE NONLINEAR STABILITY BEHAVIOUR OF BWR-SYSTEMS	1039
<i>C. Lange, D. Hennig, A. Hurtado, V. G. Llorens, G. Verdú</i>	
MODELING OF THE FAST BORON INJECTION SYSTEM FOR CAN-II	1049
<i>B. Collins, A. Ward, B. Mount, T. Drzewiecki, Y. Xu, T. Downar, M. Lopez-De-Bertodano</i>	
GLOBAL ADJOINT SENSITIVITY ANALYSIS AND OPTIMIZATION: COMPUTATION OF CRITICAL POINTS	1056
<i>D. G. Cacuci, A. F. Badea, S. Ostapchenko</i>	
SOLUTION OF K-EIGENVALUE PROBLEM BY NODAL DIFFUSION METHOD USING ORTHOMIN(1) ALGORITHM	1064
<i>S. Mishra, R. S. Modak, S. Ray, A. N. Kumar</i>	
CONTINUOUS PSEUDO SPECTRAL METHOD FOR THE NEUTRON DIFFUSION EQUATION ON A TRIANGULAR MESH	1070
<i>S. González-Pintor, D. Ginestar, G. Verdú</i>	
NOVEL HYBRID SCHEME TO COMPUTE SEVERAL DOMINANT EIGENMODES FOR REACTOR ANALYSIS PROBLEMS	1078
<i>V. Mahadevan, J. Ragusa</i>	
A 2D BENCHMARK FOR THE VERIFICATION OF THE PEBBED CODE	1086
<i>B. D. Ganapol, H. D. Gougar, A. M. Ougouag</i>	
ELEMENT OF VALIDATION OF THE CODE DRAGON VS MCNP5 FOR PWR ASSEMBLY CALCULATIONS	1092
<i>J. Le Mer, G. Marleau, T. Courau</i>	
EFFECT OF DIRECTION-DEPENDENT DIFFUSION COEFFICIENTS ON THE ACCURACY OF THE DIFFUSION MODEL FOR LWR CORES	1098
<i>R. J. Zerr, M. Ouisloumen, Y. Azmy</i>	

BENCHMARKING OF WIMS-AECL/RFSP MULTICELL METHODOLOGY WITH MCNP FOR ACR-1000	1106
FULL-CORE CALCULATIONS	
<i>W. Shen, D. A. Jenkins, A. Connolly, I. Attieh, D. Buss, T. Liang, S. Hart</i>	
A FEASIBILITY STUDY OF SUB-CRITICALITY MONITORING FOR ADS VIA STATIC FLUX	1114
DISTRIBUTION MEASUREMENT	
<i>X. Jiang, S. Wei, S. Zhang, A. Ma</i>	
APPROACH TO IMPROVE THE AXIAL POWER DISTRIBUTION FOR THE APPLICATION OF A CORE	1120
PROTECTION SYSTEM.....	
<i>B. S. Koo, J. Y. Cho, J. S. Song, C. C. Lee</i>	
EQUILIBRIUM TRANSURANIC MANAGEMENT SCHEME FOR DIVERSE FUEL CYCLE ANALYSIS	1127
.....	
<i>J. Haas, J. C. Lee</i>	
REACTIVITY COEFFICIENTS AND UNCERTAINTY EVALUATIONS ON THE EFIT CORE NEUTRON	1135
DESIGN	
<i>G. Glinatsis, C. Artioli, C. Petrovich, M. Sarotto</i>	
REDUCTION OF REPOSITORY HEAT LOAD USING ADVANCED FUEL CYCLES	1143
.....	
<i>J. Preston, L. F. Miller</i>	

16A1-04. CORE ANALYSIS – III

THE APPLICATION OF THE PARCS NEUTRONICS CODE TO THE ATUCHA-I AND ATUCHA-II NPPS.....	1150
<i>A. Ward, B. Collins, M. Madariaga, Y. Xu, T. Downar</i>	
EXTENSION OF THE TIME-AVERAGE MODEL TO CANDU REFUELING SCHEMES INVOLVING	1158
RESHUFFLING	
<i>B. Rouben, E. Nichita</i>	
THE MECHANICAL CONTROL ABSORBER REACTIVITY DEPENDENCE ON THE ENRICHMENT AND	1165
BURN-UP IN CANDU-SEU SUPERCELLS	
<i>V. Balaceanu, M. Constantin</i>	
ANALYSIS OF PWR ASSEMBLY BOW	1171
<i>R. J. Fetterman, F. Franceschini</i>	
OSCAR-4 CODE SYSTEM APPLICATION TO THE SAFARI-1 REACTOR	1179
<i>G. Stander, R. H. Prinsloo, E. Müller, D. I. Tomaševic</i>	

16A2-04. CORE ANALYSIS VALIDATION

MODELING OF LVRF CRITICAL EXPERIMENTS IN ZED-2 USING WIMS9A/PANTHER AND MCNPs.....	1188
<i>M. T. Sissaoui, P. A. Carlson, J. R Lebenthal</i>	
BABCOCK & WILCOX EXPERIMENTS INTERPRETATION	1196
<i>A. Aktoglu, C. Garzenne</i>	
VALIDATION OF THE MICRO-DEPLETION METHOD FOR CANDU POWER DERATING TRANSIENT	1204
SCENARIO	
<i>T. Liang, W. Shen, D. Jenkins, C. Newman</i>	
MODELS FOR COOLANT VOID REACTIVITY EVALUATION IN CANDU GENERATION II AND III+	1212
<i>A. V. Popov, R. P. Chambon, R. Le Tellier, G. Marleau, A. Hébert</i>	
COMPARISON OF RECONSTRUCTED RADIAL PIN TOTAL FISSION RATES WITH EXPERIMENTAL	1219
RESULTS IN FULL SCALE BWR FUEL ELEMENTS	
<i>F. Giust, P. Grimm, F. Jatuff, R. Chawla</i>	

16A3-04. CORE INSTRUMENTATION AND NOISE ANALYSIS

NEUTRON-DETECTION BASED MONITORING OF VOID EFFECTS IN BOILING WATER REACTORS	1227
<i>J. Loberg, M. Österlund, K.-H. Bejmer, J. Blomgren</i>	
SEMI-ANALYTICAL CALCULATIONS OF THE NEUTRON NOISE IN 2-GROUP THEORY FOR 1-D	1235
HOMOGENEOUS SYSTEMS.....	
<i>V. Larsson, C. Demazière</i>	
TIME-DEPENDENT MODEL CALIBRATION THROUGH CONSISTENT DATA ASSIMILATION	1243
<i>A. F. Badea, D. G. Cacuci, M. Badea</i>	
APPLICATION OF NOISE ANALYSIS IN DETERMINATION OF MODERATOR	1251
TEMPERATURECOEFFICIENT OF REACTIVITY IN CANDUS	
<i>Z. Catovic, N. Safaian</i>	

16P1-04. CORE ANALYSIS

APPLICATION OF THE NEW CORE MONITORING SYSTEM, “GNF-ARGOS”, TO THE START-UP	1258
TRACKING CALCULATION OF ABWR.....	
<i>M. Tojo, T. Naka, T. Iwamoto, J. Koyama, K. Harada</i>	
BWR MOX CORE MONITORING AT KERNKRAFTWERK GUNDREMMINGEN.....	1266
<i>A. Noël, R. Holzer, G. Anton, K. Smith</i>	

CORE MODELLING AND ANALYSIS OF THE SWISS NUCLEAR POWER PLANTS FOR QUALIFIED R&D APPLICATIONS	1274
<i>H. Ferroukhi, K. Hofer, J.-M. Hollard, A. Vasiliev, M. A. Zimmermann</i>	
THE ADVANCED BWR CORE SIMULATOR AETNA02	1282
<i>S. Palmtag, J. Lamas, J. Finch, A. Godfrey, B. R. Moore</i>	
A NEW UNCERTAINTY REDUCTION METHOD FOR PWR CORES WITH ERBIA BEARING FUEL	1290
<i>T. Takeda, T. Sano, T. Kitada, T. Kuroishi, M. Yamasaki, H. Unesaki</i>	
ARTEMIS: THE CORE SIMULATOR OF AREVA NP'S NEXT GENERATION COUPLED NEUTRONICS/THERMAL-HYDRAULICS CODE SYSTEM ARCADIA®.....	1298
<i>G. Hobson, H.-W. Bolloni, K.-A. Breith, F. Curca-Tivig, A. Dall'Osso, R. Van Geemert, J. Heinecke, B. Hartmann, S. Merk, D. Porsch, B. Pothet, V. Tiles</i>	
INFLUENCE OF CALCULATIONAL APPROXIMATIONS ON TEMPERATURE COEFFICIENT OF REACTIVITY FOR A HTGR OF THE GT-MHR TYPE	1306
<i>V. Boyarinov, P. Fomichenko, E. Glushkov, N. Kodochigov, E. Marova, S. Osipov, Y. Sukharev, S. Shepelev, E. Mitenkova, N. Novikov</i>	
SPATIAL COUPLING FOR COUPLED CODE SAFETY ANALYSIS OF BWR DESIGN-BASIS ACCIDENTS	1313
<i>J. Peltonen, T. Kozlowski, T.-N. Dinh</i>	

17B1-04. LATTICE AND CORE PHYSICS METHODS

DEVELOPMENTS WITHIN WIMS10.....	1321
<i>T. Newton, G. Hosking, L. Hutton, D. Powney, B. Turland, T. Shuttleworth</i>	
CASMO-5 ENERGY RELEASE PER FISSION MODEL	1330
<i>J. Rhodes, K. Smith, Z. Xu</i>	
SIMULATE-4 DEVELOPMENTS.....	1337
<i>S.-Ö. Lindahl, T. Bahadir, G. M. Grandi</i>	
MODIFICATION OF THE ANC NODAL CODE FOR ANALYSIS OF PWR ASSEMBLY BOW	1345
<i>F. Franceschini, R. J. Fetterman, D. C. Little</i>	
USE OF 2D WHOLE CORE REACTOR MODELS FOR PWR ANALYSIS WITH APOLLO2.....	1353
<i>I. Zmijarevic, H. Golfier, S. Santandrea, Z. Stankovski, C. Guénaut</i>	

TRACK 5. ADVANCED FUEL & CORE DESIGN

17C1-05. FUEL AND CORE DESIGN FOR ADVANCED SYSTEMS

NEUTRONICS OF SUPER-CRITICAL LWR LATTICE WITH (TH+U)O₂-FUEL: HOW TO SUPPRESS COOLANT EFFECT OF REACTIVITY	1361
<i>E. Kulikov, G. Kulikov, V. Apse, A. Shmelev</i>	
PRECONCEPTUAL DESIGNS OF THE 200MWTH PRISM AND PEBBLE-BED TYPE VHTR CORES.....	1368
<i>C. Keun Jo, H. S. Lim, J. M. Noh</i>	
CORE LIFETIME AND FUEL UTILIZATION IN PRISMATIC VHTR CORES	1375
<i>A. Alajo, P. Tsvetkov</i>	
OPTIMIZATION AND SIMPLIFICATION OF THE CONCEPT OF NON-MODERATED THORIUM MOLTEN SALT REACTOR.....	1381
<i>E. Merle-Lucotte, D. Heuer, M. Allibert, X. Doligez, V. Ghetta, C. Le Brun</i>	
BURNABLE POISON FOR REACTIVITY MANAGEMENT IN A VERY HIGH TEMPERATURE REACTOR	1389
<i>C. K. Jo, Y. Kim, J. M. Noh</i>	

17C2-05. LWR FUEL AND CORE DESIGN

BURNUP CREDIT OF ERBIA SUPER-HIGH-BURNUP FUEL	1397
<i>N. Sugimura, M. Imamura, M. Mori, M. Yamasaki</i>	
CALCULATION OF NEUTRON EMISSION FROM SPENT LWR FUEL ASSEMBLIES: SNF METHOD AND VALIDATION	1401
<i>S. Borresen, A. Becker</i>	
PROJECTED PREDICTOR-CORRECTOR METHOD FOR BURNUP CALCULATIONS OF GD-BEARING FUEL ASSEMBLIES.....	1407
<i>A. Yamamoto, M. Tatsumi, N. Sugimura</i>	
THE PROCEDURE FOR DETERMINATION OF SPECIAL MARGIN FACTORS TO ACCOUNT FOR A BOW OF THE VVER-1000 FUEL ASSEMBLIES.....	1414
<i>S. V. Tsyanov, S. V. Marin, L. K. Shishkov</i>	
FUEL BURNUP ANALYSIS OF A 17X17 PWR ASSEMBLY USING THE PENTRAN/PENBURN SUITE	1423
<i>T. Plower, K. Manalo, M. Rowe, G. Sjoden</i>	

17C3-05. HWR FUEL AND CORE DESIGN

FUEL MANAGEMENT IN CANDU REACTORS USING TABU SEARCH.....	1431
<i>R. Chambon, E. Varin</i>	
THE PHYSICS DESIGN OF THE ADVANCED CANDU REACTOR.....	1439
<i>A. Buijs, M. Bonechi, M. Boubcher, P. S. Chan, A. Colton, J. V. Donnelly, R. Farkas, I. Hill, J. Hu, N. Kupiec, I. Martchouk, M. Ovanes, A. Rehman, R. Robinson, G. Teneva</i>	
FUEL CYCLE FLEXIBILITY OF ACR-1000	1448
<i>M. Ovanes, P. S. W. Chan, J. Hopwood</i>	
THERMAL-HYDRAULICS ANALYSIS FOR ADVANCED FUEL TO BE USED IN CANDU 600 NUCLEAR REACTORS.....	1456
<i>A. Catana, N. Danila, I. Prisecaru , D. Dupleac</i>	

17P1-05. ADVANCED FUEL AND CORE DESIGN

INTEGRAL EXPERIMENT ON ERBIA-LOADED THERMAL SPECTRUM CORES USING KYOTO UNIVERSITY CRITICAL ASSEMBLY.....	1464
<i>H. Unesaki, T. Takeda, A. Yamamoto, M. Mori, M. Yamasaki</i>	
LOADING PATTERN OPTIMIZATION USING ANT COLONY ALGORITHM	1472
<i>F. Hoareau</i>	
ADVANCED OPERATIONAL STRATEGY FOR THE IRIS REACTOR: FEASIBILITY OF LOAD FOLLOW THROUGH MECHANICAL SHIM (MSHIM) FOR UO₂ AND MOX CORES	1480
<i>F. Franceschini, B. Petrovic</i>	
BWR FUEL LATTICE DESIGN USING AN ANT COLONY MODEL	1488
<i>J. L. Montes, J. L. Francois, J. J. Ortiz, C. Martín-Del-Campo</i>	
AN ADVANCED URANIUM NITRIDE DESIGN CONCEPT FOR HIGH PERFORMANCE ANNULAR FUEL ASSEMBLIES.....	1495
<i>T. Ellis, P. Hejzlar, M. Kazimi</i>	
HYBRID HARMONICS AND LINEARIZATION PERTURBATION METHOD FOR FAST LOADING PATTERN EVALUATION.....	1502
<i>S. Zhang, X. Fu, T. Wang, Y. A. Chao</i>	
VERIFICATION OF THE AEGIS/SCOPE2 IN-CORE FUEL MANAGEMENT SYSTEM	1508
<i>M. Tatsumi, Y. Ohoka, N. Sugimura, A. Yamamoto</i>	
MUTANT COMPONENTS AND SCRIPTING IN SILENE 2D/3D PRE & POST PROCESSING GUI.....	1514
<i>Z. Stankovski</i>	
CONCEPT FOR MULTI-CYCLE NUCLEAR FUEL OPTIMIZATION BASED ON PARALLEL SIMULATED ANNEALING WITH MIXING OF STATES	1520
<i>D. J. Kropaczek</i>	
MOX FUEL ASSEMBLY DESIGN EQUIVALENT TO ENRICHED URANIUM FUEL FOR BWR	1528
<i>R. Ramirez-Sanchez, R. T. Perry, G. Alonso-V., J. Palacios-H.</i>	
BASIC THEORY OF CANDLE BURN-UP.....	1533
<i>H. Sekimoto</i>	
ACTINIDE CLOSED WATER COOLED THORIUM BREEDER REACTOR.....	1541
<i>N. Takaki, S. Permana, H. Sekimoto</i>	
DESIGN MODIFICATION IN AHWR D5 CLUSTER TO OBTAIN NEGATIVE CHANNEL TEMPERATURE COEFFICIENT	1547
<i>R. Karthikeyan</i>	
PHYSICS DESIGN OF COMPACT HIGH TEMPERATURE REACTOR	1555
<i>A. Gupta, A. Kumar, D. K. Dwivedi, P. D. Krishnani</i>	
NEUTRONIC ANALYSIS OF THE PB-AHTR INTEGRAL DESIGN	1563
<i>M. Fratoni, E. Greenspan, P. F. Peterson</i>	
AUTONOMOUS MULTI-PURPOSE FLOATING POWER SYSTEM WITH A COMPACT STATIC PEBBLE BED REACTOR.....	1571
<i>P. Tsvetkov, K. Vierow, K. Peddicord, J. Ragusa, S. McDeavitt, J. Poston Sr., L. Shao, G. Willems</i>	
MULTIPHYSICS APPROACH TO THE ANALYSIS OF MOLTEN SALT REACTORS.....	1577
<i>C. Nicolino, S. Dulla, G. Lapenta, P. Ravetto</i>	
DESIGN AND SAFETY STUDIES ON AN EFIT CORE WITH CERMET FUEL	1584
<i>X. Chen, A. Rineiski, P. Liu, W. Maschek, C. M. Boccaccini, F. Gabrielli, V. Sobolev</i>	
PARAMETRIC STUDIES ON THE FUEL SALT COMPOSITION IN THERMAL MOLTEN SALT BREEDER REACTORS	1592
<i>K. Nagy, J. L. Kloosterman, D. Lathouwers, T. H. J. J. Van Der Hagen</i>	
THE REACTIVITY-EQUIVALENT PHYSICAL TRANSFORMATION METHOD FOR BINARY TRISO FUELS	1600
<i>Y. Kim, W. S. Park</i>	
PARAMETRIC STUDY ON A NATURAL CIRCULATION COOLED U-BATTERY	1607
<i>S. De Zwaan, J. L. Kloosterman, G. Van Uitert</i>	
PHYSICS AND THERMAL HYDRAULICS DESIGN OF A SMALL REACTOR BASED ON THE IRIS DESIGN	1614
<i>A. Letouze, A. Marecaux, J. Rollason, S. Heap, A. Foster, S. Jewer, A. C. Thompson, A. M. Williams, P. A. Beeley</i>	

TRACK 6. CRITICALITY SAFETY

16D1-06. CRITICALITY SAFETY ANALYSIS

OVERVIEW OF THE ACTIVITIES OF THE OECD/NEA/NSC WORKING PARTY ON NUCLEAR CRITICALITY SAFETY	1619
<i>Y. Rugama, R. Blomquist, M. Brady Raap, B. Briggs, J. Gulliford, Y. Miyoshi, K. Suyama, T. Ivanova</i>	
APPLICATION OF MONTE CARLO METHODS TO THE EVALUATION OF THE CRITICALITY SAFETY ACCEPTANCE CRITERION	1624
<i>J. C. Neuber, A. Hoefer</i>	
CRITICALITY CALCULATIONS FOR CANNED FAST REACTOR FUEL RODS	1632
<i>M. Hennebach</i>	
EVALUATION OF ERBIA CONTENT IN ER-SHB FUEL FOR CRITICALITY SAFETY OF FABRICATION FACILITIES	1638
<i>T. Kuroishi, M. Yamasaki</i>	
THE PLUTONIUM TEMPERATURE EFFECT EXPERIMENTAL PROGRAM	1645
<i>W. Haeck, N. Leclaire, E. Létiang, E. Girault, P. Fouillaud</i>	

16D2-06. CRITICALITY SAFETY METHODS

NUMBER DISTRIBUTION OF DETECTED NEUTRONS IN A MULTIPLYING MEDIA, DETERMINISTIC AND STOCHASTIC SIMULATIONS	1651
<i>P. Humbert</i>	
FISSION SOURCE CALCULATIONS AND ITS INFLUENCE IN CRITICALITY APPLICATIONS	1657
<i>C. Mounier, B. Normand</i>	
INVESTIGATION OF SUBCRITICAL CORE STATE USING FIXED-SOURCE MODELS IN DIFFUSION AND MONTE-CARLO CODES	1663
<i>A. Khaiad, B. Phelps, A. Connolly, D. Buss, D. Jenkins, W. Shen</i>	
VALIDATION OF CRITICALITY CALCULATION FOR SYSTEMS WITH MOX POWDERS	1670
<i>T. Ivanova, V. Rouyer, Y. Rozhikhin, A. Tsiboulia</i>	
EVALUATION OF ACCURACY OF CALCULATIONAL PREDICTION OF CRITICALITY BASED ON ICSBEP HANDBOOK EXPERIMENTS	1677
<i>Y. Golovko, Y. Rozhikhin, A. Tsibulya, V. Koscheev</i>	

16D3-06. BURNUP CREDIT

THREE-DIMENSIONAL DEPLETION ANALYSIS OF THE AXIAL END OF A TAKAHAMA FUEL ROD	1685
<i>M. D. Dehart, I. C. Gauld, K. Suyama</i>	

Volume 3

CONSERVATIVE APPROACH FOR PWR MOX BURNUP CREDIT IMPLEMENTATION	1694
<i>L. Jutier, B. Checiak, J. Raby, L. Aguiar, I. Le Bars</i>	
BURNUP DETERMINATION BY USING MULTIPLE BURNUP INDICATORS FOR MALIBU HIGH BURNUP SAMPLES	1702
<i>T. Ito, Y. Kanayama, S. Matsuoka</i>	
ISOTOPIC INVENTORY CALCULATIONS TAKING INTO ACCOUNT 2D/3D ENVIRONMENT CONDITIONS DURING FUEL IRRADIATION	1710
<i>R. Kilger, U. Hesse, S. Langenbuch</i>	

16P1-06. CRITICALITY SAFETY

CRITICALITY SAFETY ANALYSIS OF THE INCIDENT OCCURRED AT PAKS NPP IN 2003	1716
<i>A. Wirth, S. Fehér, J. Kópházi, S. Czifrus</i>	
VALIDATION STUDY OF DEPLETION CALCULATIONS PERFORMED WITH A MONTE-CARLO CODE	1724
<i>S. Hairion, J. Raby, L. Jutier, W. Haeck, L. Aguiar, V. Rouyer</i>	
DEVELOPMENT AND VALIDATION OF THE NEW CONTINUOUS ENERGY CAPABILITY IN THE CRITICALITY SAFETY CODE KENO	1732
<i>S. Goluglu, M. E. Dunn, L. M. Petrie, T. S. Sumner</i>	
ANALYSIS OF ISOTOPIC ASSAY DATA FROM THE MALIBU PROGRAM	1744
<i>G. Ilas, I. C. Gauld</i>	

TRACK 7. NPP TRANSIENTS

16C3-07. BEST-ESTIMATE TRANSIENT ANALYSIS

VVER-1000 MAIN STEAM LINE BREAK ANALYSIS USING THE COUPLED CODE SYSTEM DYN3D/ATHLET	1751
<i>S. Kliem, Y. Kozmenkov, T. Höhne, U. Rohde, F.-P. Weiss</i>	
TRANSIENT ANALYSIS IN THE 3D NODAL KINETICS AND THERMAL-HYDRAULICS ANDES/COBRA COUPLED SYSTEM	1758
<i>J. A. Lozano, J. M. Aragónés, N. García-Herranz</i>	
COUPLED HIGH FIDELITY THERMAL HYDRAULICS AND NEUTRONICS FOR REACTOR SAFETY SIMULATIONS	1766
<i>V. A. Mousseau, H. Zhang, H. Zhao</i>	
ANALYSIS OF A ROD WITHDRAWAL IN A PWR CORE WITH THE NEUTRONICS- THERMALHYDRAULIC COUPLED CODE RELAP/PARCS	1774
<i>R. Miró, G. Verdú, A. Soler, A. Gomez, A. Ortego, J. C. Martínez-Murillo</i>	

17B2-07. PBMR-400 TRANSIENT ANALYSIS

THE OECD/NEA/NSC PBMR400 MW COUPLED NEUTRONICS THERMAL HYDRAULICS TRANSIENT BENCHMARK – STEADY-STATE RESULTS AND STATUS	1778
<i>F. Reitsma, J. Han, K. Ivanov, E. Sartori</i>	
COUPLED NEUTRONICS / THERMAL HYDRAULICS CALCULATIONS FOR HIGH TEMPERATURE REACTORS WITH THE DALTON - THERMIX CODE SYSTEM	1789
<i>B. Boer, D. Lathouwers, M. Ding, J. L. Kloosterman</i>	
APPLICATION OF TIME-DEPENDENT NEUTRON TRANSPORT THEORY TO HIGH TEMPERATURE REACTORS OF PEBBLE BED TYPE	1797
<i>A. Pautz, B. Tyobeka, K. Ivanov</i>	
A QUASI-REGRESSION METHOD FOR AUTOMATED CROSS-SECTION PARAMETERIZATION: PBMR BENCHMARK EXAMPLE	1807
<i>P. M. Bokov, R. H. Prinsloo, D. I. Tomaševic, F. Reitsma</i>	
SPECTRAL ZONES SELECTION METHODOLOGY FOR PEBBLE BED REACTORS	1817
<i>R. Mphahlele, A. M. Ougouag, K. N. Ivanov, H. D. Gougar</i>	

17B3-07. REACTOR KINETICS METHODS AND APPLICATIONS

COMPARATIVE STUDY OF CORETRAN AND SIMULATE-3K FOR MAIN STEAM LINE BREAK ANALYSES	1825
<i>H. Ferroukhi, O. Zerkak, R. Chawla</i>	
PWR CONTROL ROD EJECTION ANALYSIS WITH THE METHOD OF CHARACTERISTIC CODE DECART	1833
<i>M. Hursin, T. J. Downar, J. Thomas</i>	
ADVANTAGES OF WESTINGHOUSE BWR CONTROL ROD DROP ACCIDENTS METHODOLOGY UTILIZING INTEGRATED POLCA-T CODE	1841
<i>D. Panayotov</i>	
VALIDATION OF WESTINGHOUSE INTEGRATED CODE POLCA-T AGAINST OECD NEACRP-L-335 ROD EJECTION BENCHMARK	1849
<i>D. Panayotov</i>	

17P1-07. NPP TRANSIENTS

A SIMPLIFIED COUPLED APPROACH FOR THE EVALUATION OF BORAX TRANSIENTS IN EXPERIMENTAL REACTORS	1857
<i>R. Meignen, M. Gasperini, G. B. Bruna</i>	
ACCELERATION OF THE NUMERICAL SOLUTION OF THE REACTOR KINETICS EQUATIONS IN PLANE GEOMETRY	1865
<i>B. D. Ganapol, E. H. Mund</i>	
EVALUATION OF ROD DROP ACCIDENT WITH BEST-ESTIMATE TRACG CODE	1871
<i>M. Sugawara, T. Iwamoto, Y. Kudo, M. Tamitani</i>	
ANALYSIS OF RBMK-1500 FUEL ROD BEHAVIOUR IN CASE OF REACTIVITY INITIATING ACCIDENTS	1879
<i>A. Jusevičiute, A. Kalaiatka, R. Pabarcius, E. Ušpuras</i>	
HEMERA: A 3D COMPUTATIONAL CHAIN FOR PWR SAFETY ANALYSIS	1887
<i>G. B. Bruna, F. Dubois, F. Fouquet, E. Mury, B. Normand, A. Sargeni, F. Scarcelli, R. Touillon, J. C. Le Pallec, E. Hourcade, E. Richebois, C. Poinot-Salanon</i>	
BEST ESTIMATE ANALYSIS OF LOFT L2-5 WITH CATHARE: UNCERTAINTY AND SENSITIVITY ANALYSIS	1895
<i>J. Joucla, P. Probst, F. Fouet</i>	

DLOFC TRANSIENT ANALYSIS FOR PBMR WITH NEM/THERMIX	1903
<i>P. Mkhabelaa, K. Ivanov</i>	
DORT-TD/THERMIX SOLUTIONS FOR THE OECD/NEA/NSC PBMR400 MW COUPLED NEUTRONICS	
THERMAL HYDRAULICS TRANSIENT BENCHMARK.....	1909
<i>B. Tyobeka, A. Pautz, K. Ivanov</i>	
ANALYSIS OF OECD/NEA/NSC PBMR400 TRANSIENT BENCHMARK PROBLEM WITH PARCS.....	1919
<i>V. Seker, T. J. Downar</i>	
UNSTRUCTURED 3D MINOS/FLICA4 COUPLING IN SALOME APPLICATION TO JHR TRANSIENT ANALYSIS	1927
<i>A.-M. Baudron, N. Crouzet, C. Döderlein, A. Geay, J.-J. Lautard, E. Richebois, E. Royer, P. Siréta</i>	
JACOBIAN-FREE NEWTON KRYLOV DISCONTINUOUS GALERKIN METHOD AND PHYSICS-BASED PRECONDITIONING FOR NUCLEAR REACTOR SIMULATIONS	1934
<i>H. Park, R. R. Nourgaliev, R. C. Martineau, D. A. Knoll</i>	
EFFECTS OF THE CORE INLET MIXING MODELLING ON A MAIN STEAM LINE BREAK ANALYSIS AT HOT FULL POWER	1943
<i>O. Zerkak, H. Ferroukhi</i>	
POST TEST CALCULATION OF OECD/ROSA TEST 6.2	1951
<i>S. Gallardo, G. Verdú, V. García, V. Abella</i>	
PROPAGATION OF VOID FRACTION UNCERTAINTY MEASURES IN THE RETRAN-3D SIMULATION OF THE PEACH BOTTOM TURBINE TRIP	1959
<i>P. Vinai, R. Macian-Juan, R. Chawla</i>	
RELAP5-3D© THREE DIMENSIONAL NEUTRON KINETICS COUPLED THERMALHYDRAULICS ANALYSES OF THE ATUCHA-2 PHWR	1967
<i>C. Parisi, O. Mazzantini, F. D'Auria, K. N. Ivanov</i>	
VALIDATIONAL EXERCISES WITH RELAPS/PARCS COUPLED CODES USING RINGHALS-3 PLANT DATA	1976
<i>J. Bánáti, M. Stálek, C. Demazière</i>	
COUPLED RELAP5/PARCS MAIN STEAM LINE BREAK CALCULATIONS BEFORE AND AFTER A POWER UPGRADE OF A PRESSURIZED WATER REACTOR	1984
<i>M. Stálek, J. Bánáti, C. Demazière</i>	

18B0-07. ADVANCED METHODOLOGIES FOR MULTI-PHYSICS COMPUTATIONS

A COUPLED CFD-SYSTEM CODE DEVELOPMENT AND APPLICATION	1992
<i>Y. Yan, Rizwan-Uddin, K. Kim</i>	
ATHLET/BIPR-VVER – AN ADVANCED COUPLED CODE SYSTEM FOR VVER SAFETY ANALYSIS.....	2000
<i>S. Langenbuch, M. Lizorkin, S. Nikonorov, K. Velkov</i>	
SIMULATION OF A MAIN STEAM LINE BREAK ON VVER-1000 REACTOR WITH CRONOS2 AND FLICA4 CODES	2006
<i>C. Debergé, E. Royer, A. Geay, N. Crouzet</i>	
SINGLE-PHASE MIXING STUDIES BY MEANS OF A DIRECTLY COUPLED CFD/SYSTEM-CODE TOOL	2012
<i>D. Bertolotto, A. Manera, B. Smith, H.-M. Prasser, R. Chawla</i>	
COMPARATIVE ANALYSIS OF NEUTRONICS/THERMAL-HYDRAULICS MULTI-SCALE COUPLING FOR LWR ANALYSIS.....	2021
<i>J. Jiménez, M. Avramova, D. Cuervo, K. Ivanov</i>	
DEVELOPMENT AND VALIDATION OF A CANDU LIQUID POISON INJECTION SHUTDOWN SYSTEM	2030
<i>L. Blake, J. Szymandera, J. Donnelly, S. Cheung, E. Ward, J. Vichiarelli, H. Albashta, G. Gavrus, B. G. Phan</i>	

18B1-07. BWR TRANSIENT ANALYSIS

SIMULATE-3K STABILITY BENCHMARKING AND PREDICTIVE CALCULATIONS OF LEIBSTADT	2038
<i>L. Belblidia, G. Grandi, C. Aguirre</i>	
APPLICATION OF TRACE/PARCS TO BWR STABILITY ANALYSIS	2044
<i>Y. Xu, T. Downar, R. Walls, K. Ivanov, J. Staudenmeier, J. March-Lueba</i>	
IMPROVED NODAL KINETICS DATA MODEL FOR BWR TRANSIENT CALCULATIONS.....	2054
<i>B. Akdeniz, E. Müller, D. Panayotov, K. Ivanov</i>	
DESIGN OF BWR INSTABILITY SUPPRESSION SYSTEM.....	2062
<i>A. Kubarev, T. Kozlowski, S. S. Roshan, Truc-Nam Dinh</i>	
EVALUATIONS OF GENERIC ABWR ATWS EMERGENCY OPERATION PROCEDURES USING MAAP	2069
<i>Y.-T. Liu, Y.-M. Ferng, J.-J. Peir, C. Shih</i>	

TRACK 8. ACTINIDE MANAGEMENT

15E1-08. MINOR ACTINIDE TRANSMUTATION IN FAST SPECTRA AND ADS

HETEROGENEOUS RECYCLE OF TRANSURANICS FUELS IN FAST REACTORS.....	2077
<i>E. Hoffman, T. Taiwo, R. Hill</i>	

**A CORE DESIGN STUDY ON THE FUEL DISPLACEMENT OPTIONS FOR AN EFFECTIVE TRANSITION
BETWEEN BREAKEVEN AND TRU BURNING FAST REACTORS** 2085

S. J. Kim, J. Y. Lim, Y. I. Kim, W. S. Yang, D. H. Hahn

**MINOR ACTINIDE TRANSMUTATION AS BURNABLE POISON AND FUEL IN SUPERCRITICAL-CO₂-
COOLED AND NA-COOLED FAST REACTOR CORES** 2093

H. N. Tran, Y. Kato

MINOR ACTINIDE TRANSMUTATION IN ADS: THE EFIT CORE DESIGN 2101

C. Artioli, X. Chen, F. Gabrielli, G. Glinatsis, P. Liu, W. Maschek, C. Petrovich, A. Rineiski, M. Sarotto, M. Schikorr

NEUTRONIC DESIGN OF THE XT-ADS CORE 2110

G. Van Den Eynde, E. Malambu, H. Aït Abderrahim, D. De Bruyn, G. Rimpault, D. Struwe, R. Dagan, M.-C. Badea, Y. Romanets, P. Vay, M.-C. Vicente

15E2-08. ACTINIDE MANAGEMENT IN THERMAL SPECTRA

AP1000 CORE DESIGN WITH 50% MOX LOADING 2116

R. J. Fetterman

PLUTONIUM AND MINOR ACTINIDES MULTI-RECYCLING IN PWR USING HYDRIDE FUELS 2124

F. Ganda, E. Greenspan

OPTIMIZATION OF AMERICIUM-LOADED LATTICES TESTED IN 3D BWR COREWIDE SIMULATIONS 2133

J. Galloway, H. Hernandez, G. I. Maldonado

THE POTENTIAL USE OF ²⁴¹AM AS PROLIFERATION RESISTANT BURNABLE POISON 2141

L. Goyand, Y. Ronen, E. Shwageraus

A PRACTICAL LIMIT FOR ACTINIDE TRANSMUTATION USING INERT MATRIX FUELS 2149

E. Schneider, M. Deinert

15E3-08. FUEL CYCLE ANALYSIS

FUEL CYCLE IMPACTS OF URANIUM-PLUTONIUM CO-EXTRACTION 2157

T. Taiwo, F. Szakaly, T.-K. Kim, R. Hill

**AN IMPROVED METHOD FOR FUEL CYCLE ANALYSIS AT EQUILIBRIUM AND IST APPLICATION TO
THE STUDY OF FAST BURNER REACTORS WITH VARIABLE CONVERSION RATIO** 2165

C. Chabert, R. Hill, Y. Penelau, M. Salvatores, W. S. Yang

**EQL3D: METHODOLOGY FOR SIMULATION OF EQUILIBRIUM CYCLE FOR ADVANCED FAST
REACTORS** 2173

S. Pelloni, J. Krepel, K. Mikityuk

**DETAILED INVESTIGATION OF NEUTRON EMITTERS IN THE TRANSMUTATION OF MINOR
ACTINIDES** 2181

A. Letourneau, O. Bringier, I. Al Mahamid, F. Chartier, E. Dupont, P. Mutti, L. Oriol, S. Panebianco, Ch. Veyssiére

TRACK 9. FAST REACTOR DESIGN & SAFETY

16B2-09. GAS-COOLED FAST REACTOR DESIGN AND SAFETY – I

STATUS OF THE PRE-DESIGN STUDIES OF THE GFR CORE 2189

P. Richard, J.-Y. Malo, F. Morin, T. Cadiou, J.-C. Bosq, Y. Penelau, A. Ravenet, D. Lorenzo, P. Masoni, M. Zabiego, X. Jeannings

ETDR, THE EUROPEAN UNION'S EXPERIMENTAL GAS-COOLED FAST REACTOR PROJECT 2197

C. Poette, V. Brun-Magaud, F. Morin, I. Dor, J.-F. Pignat, F. Bertrand, R. Stainsby, S. Pelloni, D. Every, D. Da Cruz

**ANALYSIS OF REACTIVITY INSERTION TRANSIENTS IN THE ETDR – A SMALL GAS COOLED FAST
REACTOR** 2205

D. Blanchet, S. Pelloni, P. Coddington, K. Mikityuk

A RADIATION SHIELDING ANALYSIS OF THE GAS COOLED ETDR PRELIMINARY DESIGN 2213

D. F. Da Cruz, A. Hogenbirk

**EQUILIBRIUM CYCLE ANALYSIS OF A GAS COOLED FAST REACTOR WITH THE EQL3D
PROCEDURE** 2221

J. Krepel, S. Pelloni, K. Mikityuk

16B3-09. GAS-COOLED FAST REACTOR DESIGN AND SAFETY – II

GIF GFR END-OF-EXPLORATORY PHASE DESIGN AND SAFETY STUDIES 2229

J. Y. Malo, T. Mizuno, T. Y. C. Wei, C. Mitchell, P. Coddington

**COMPARATIVE TRANSIENT ANALYSIS OF THE 2400MWTH GFR WITH THE TRACE AND CATHARE
CODES** 2236

A. Epiney, P. Dumaz, P. Coddington, K. Mikityuk, R. Chawla

ATWS TRANSIENTS FOR A GAS-COOLED FAST REACTOR 2244

L. Y. Cheng, H. Ludewig

GFR TRANSIENT ANALYSIS EMPLOYING A 2D THERMOMECHANICAL MODEL FOR THE PLATE-TYPE FUEL	2252
<i>P. Petkevich, K. Mikityuk, P. Coddington, R. Chawla</i>	

16P1-09. FAST REACTOR DESIGN AND SAFETY

MONTE CARLO DEPLETION ANALYSIS OF A TRU-CERMET FUEL DESIGN FOR A SODIUM COOLED FAST REACTOR	2260
<i>C. Glass, V. Seker, T. Downar</i>	
CONCEPTUAL DESIGN OF A SMALL LONG LIFE FAST REACTOR CORE LOADED WITH PU WITHOUT EXTRACTING MAS	2267
<i>Y. Hu</i>	
A 3D FULL-CORE COUPLED THERMAL-HYDRAULICS/KINETICS TRACE/PARCS MODEL OF THE 2400 MW_{TH} GENERATION IV GAS-COOLED FAST REACTOR	2273
<i>G. Girardin, K. Mikityuk, P. Coddington, R. Chawla</i>	
ASSESSMENT OF FAILURE MECHANISMS FOR GFR VENTED FUEL PINS USING HEXOLLOY CLADDING	2281
<i>J. Gan</i>	
PRELIMINARY CORE DESIGN OF THE EUROPEAN LEAD-COOLED SYSTEM	2289
<i>E. Malambu, V. Sobolev, N. Messaoudi, H. Aït Abderrahim, D. Struwe, M. Schikorr, E. Bubelis</i>	
INFLUENCE OF OXIDE LAYERS ON THE CLADDING MATERIAL IN A LIQUID LEAD ENVIRONMENT: A COMPARISON BETWEEN MATRA AND TRACE	2300
<i>W. Jaeger, V. H. S. Espinoza</i>	
PREDICTION ACCURACY IMPROVEMENT FOR NEUTRONIC CHARACTERISTICS OF A FAST REACTOR CORE BY EXTENDED BIAS FACTOR METHODS	2307
<i>T. Kugo, T. Mori, K. Yokoyama, K. Numata, M. Ishikawa</i>	
MARBLE: A NEXT GENERATION NEUTRONICS ANALYSIS CODE SYSTEM FOR FAST REACTORS	2315
<i>K. Yokoyama, Y. Hirai, M. Tatsumi, H. Hyoudou, G. Chiba, T. Hazama, Y. Nagaya, M. Ishikawa</i>	
VALIDATION AND APPLICATION OF TRANSPORT THEORY METHODS FOR PREDICTING NEUTRON DETECTOR READINGS IN FBR IN-CORE SHIELDS	2323
<i>D. K. Mohapatra, K. Devan, C. S. Sunny, A. Gupta, R. S. Modak, P. Mohanakrishnan</i>	
ANALYSIS OF DYNAMIC REGIMES AT NUCLEAR POWER PLANTS WITH FAST REACTORS USING THE JOKER CODE	2330
<i>E. F. Seleznov, A. I. Aizatulin, A.A. Belov, A. V. Prianichnikov, I. V. Fedorov, A. I. Karpenko, A.M. Tuchkov, E. V. Balakhnin</i>	
A COMPUTER CODE SYSTEM ARCADIA FOR FAST REACTOR CORE ANALYSIS AND APPLICATIONS	2338
<i>T. Nakajima, H. Endou, T. Yokoyama</i>	

18C0-09. SODIUM-COOLED FAST REACTOR DESIGN AND SAFETY

THERMAL RESPONSE OF THE HYBRID LOOP-POOL DESIGN FOR SODIUM COOLED FAST REACTORS	2346
<i>H. Zhang, H. Zhao, C. B. Davis</i>	
MONJU CORE PHYSICS TEST ANALYSIS WITH JAEA'S CALCULATION SYSTEM	2354
<i>K. Takano, K. Sugino, T. Mouri, Y. Kishimoto, S. Usami</i>	
FIRST 3-D CALCULATION OF CORE DISRUPTIVE ACCIDENT IN A LARGE SCALE SODIUM-COOLED FAST REACTOR	2362
<i>H. Yamano, Y. Tobita, S. Fujita, W. Maschek</i>	
THE SIMMER SAFETY CODE SYSTEM AND ITS VALIDATION EFFORTS FOR FAST REACTOR APPLICATION	2370
<i>W. Maschek, A. Rineiski, M. Flad, P. Liu, X. N. Chen, Y. Tobita, H. Yamano, T. Suzuki, S. Fujita, K. Kamiyama, S. Pigny, T. Cadiou, K. Morita, G. Bandini</i>	
FAST REACTOR OPERATION AND REACTIVITY CONTROL: REPORT ON THE PHENIX EXPERIENCE	2379
<i>J. Guidez, B. Fontaine, M. Vanier</i>	
CORE DESIGN STUDIES FOR A 1000 MW_{TH} ADVANCED BURNER REACTOR	2386
<i>T. K. Kim, W. S. Yang, C. Grandy, R. N. Hill</i>	

18C1-09. SODIUM- AND LEAD-COOLED FAST REACTOR DESIGN AND SAFETY

TOWARDS GEN IV SFR DESIGN: PROMISING IDEAS FOR LARGE ADVANCED SFR CORE DESIGNS	2394
<i>G. Rimpault, L. Buiron, P. Sciora, F. Varaine</i>	
FBR CORE CONCEPTS IN THE "FACT" PROJECT IN JAPAN	2401
<i>S. Ohki, T. Ogawa, N. Kobayashi, M. Naganuma, K. Kawashima, S. Maruyama, T. Mizuno, T. Tanaka</i>	
SENSITIVITY STUDY OF DIMENSIONAL VARIABLES FOR A 1,200 MWE SODIUM COOLED FAST REACTOR CORE DESIGN	2411
<i>K. Lee, H. Joo, J. Yoo, Y. Kim</i>	
THE ELSY PROJECT	2419
<i>L. Cinotti, G. Locatelli, H. Aït Abderrahim, S. Monti, G. Benamati, K. Tucek, D. Struwe, A. Orden, G. Corsini, D. Le Carpentier</i>	

FLEXIBLE CONVERSION RATIO LEAD COOLED REACTOR DESIGN	2427
<i>E. Shwageraus, P. Hejzar</i>	

TRACK 10. RESEARCH REACTORS & SPALLATION SOURCES

16E1-10. RESEARCH REACTOR PHYSICS – I

THE 3D NEUTRONICS SCHEME FOR THE DEVELOPMENT OF THE JULES-HOROWITZ-REACTOR.....	2435
<i>C. Döderlein, T. Bonaccorsi, C. D'Aletto, J. Di Salvo, O. Guéton, L. Lamoine, F. Moreau, G. Naudan, P. Siréta</i>	
NEW CROSS SECTION PROCESSING METHODOLOGY FOR HFIR CORE ANALYSIS.....	2443
<i>G. Ilas, J. C. Gehin, R. T. Primm</i>	
IMPROVED MONTE CARLO – PERTURBATION METHOD FOR ESTIMATION OF CONTROL ROD WORTHS IN A RESEARCH REACTOR	2450
<i>S. Kalcheva, E. Koonen</i>	
HFR ADVANCED COMPUTATION'S MODELS	2460
<i>G. Campioni, B. Desbrière</i>	
PHOTOPRODUCTION DATA FOR HEATING CALCULATIONS.....	2468
<i>S. C. Van Der Marck, A. J. Koning, D. Rochman</i>	

17D1-10. RESEARCH REACTOR PHYSICS – II

FULL CORE BURN-UP CALCULATION AT JRR-3 WITH MVP-BURN	2473
<i>M. Komeda, K. Yamamoto, T. Kusunoki</i>	
DETAILED CHARACTERIZATION OF THE EXPERIMENTAL SHIELD TANK FACILITY AT THE UNIVERSITY OF FLORIDA TRAINING REACTOR	2480
<i>A. Patel, A. Haghigiat, B. Lee</i>	
NUCLEAR CHARACTERISTICS EVALUATION FOR KYOTO UNIVERSITY RESEARCH REACTOR WITH LOW-ENRICHED URANIUM CORE.....	2487
<i>K. Nakajima, H. Unesaki</i>	
MEASUREMENT OF PIN POWER DISTRIBUTION AT THE HANARO FUEL ASSEMBLY	2494
<i>C. G. Seo, S. J. Park, B. C. Lee, Y. S. Choo, H. Kim</i>	
PARALLEL DECOMPOSITION AND ADAPTIVE DIFFERENCING ISSUES IN THE WHOLE CORE MODELING OF THE OSURR	2500
<i>R. Kennedy, G. Sjoden, T. Aldemir</i>	

17D2-10. RESEARCH REACTOR APPLICATIONS

A NEW SINGLE-CRYSTAL FILTERED THERMAL NEUTRON SOURCE FOR NEUTRON CAPTURE THERAPY RESEARCH AT THE UNIV OF MISSOURI.....	2508
<i>J. Brockman, D. W. Nigg, M. F. Hawthorne, C. McKibben</i>	
CHARACTERISTICS AND PERFORMANCE OF THE NEUTRON POWDER DIFFRACTOMETER AT THE NC STATE UNIVERSITY PULSTAR REACTOR.....	2517
<i>D. D. Dijulio, A. I. Hawari</i>	
ANALYSIS OF A FAST SPECTRUM IRRADIATION FACILITY IN THE HIGH FLUX ISOTOPE REACTOR	2524
<i>R. J. Ellis, J. C. Gehin, J. L. McDuffee, R. W. Hobbs</i>	
THE ADVANCED TEST REACTOR IRRADIATION CAPABILITIES AVAILABLE AS A NATIONAL SCIENTIFIC USER FACILITY	2530
<i>S. B. Grover</i>	

Volume 4

UPGRADING OF THE COUPLED NEUTRONICS-FLUID DYNAMICS CODE SIMMER TO SIMULATE THE RESEARCH REACTORS CORE DISRUPTIVE RIA	2538
<i>G. Biaut, J. Couturier, D. Wilhelm, L. Ping</i>	

17D3-10. SPALLATION SOURCES

SAFETY ASPECTS OF HIGH POWER TARGETS FOR EUROPEAN SPALLATION SOURCES.....	2545
<i>R. Moormann, K. Bongardt, S. Chiriki</i>	
PROGRESS ON THE MATERIALS TEST STATION	2553
<i>E. Pitcher, K. Woloshun, C. Ammerman, M. James, H. Trellue, S. Maloy, A. Naranjo, E. Olivas</i>	
GAS PRODUCTION AND ACTIVATION CALCULATION IN MEGAPIE	2559
<i>N. Thiollière, J.-C. David, M. Eid, A. Yu. Konobeyev, J. Eikenberg, U. Fischer, F. Gröschel, A. Guertin, C. Latgé, S. Lemaire, S. Leray, A. Letourneau, F. Michel-Sendis, K. Nishihara, S. Panebianco, G. Stankunas, W. Wagner, B. Wernli, L. Zanini</i>	
NEUTRONIC CHARACTERIZATION OF THE MEGAPIE TARGET	2567
<i>S. Panebianco, K. Berg, J.-C. David, M. Eid, U. Filges, F. Gröschel, A. Guertin, A. Yu. Konobeyev, C. Latgé, S. Lemaire, S. Leray, A. Letourneau, M. Lüthy, F. Michel-Sendis, S. Scauzzi, G. Stankunas, N. Thiollière, L. Tobler, L. Zanini</i>	

17P1-10. RESEARCH REACTORS & SPALLATION SOURCES

PERFORMANCE EVALUATION OF MOZAIK FOR PSBR'S BEAM PORT DESIGN CALCULATIONS.....	2575
<i>K. B. Bekar, Y. Y. Azmy, K. Unlu, J. Brenizer</i>	
THERMAL-HYDRAULIC MODELLING OF THE SAFARI-1 RESEARCH REACTOR USING RELAP/SCDAPSIM/MOD3.4	2582
<i>A. Sekhri, A. D'Arcy, A. Graham, M. Oliver</i>	
INDUCED ACTIVITY AND CONTAMINATION OF INNER VESSEL WALLS OF THE LVR-15 RESEARCH REACTOR	2592
<i>L. Viererbl, Z. Lahodova, J. Neuzil, V. Klupak, M. Marek, J. Rataj, V. Cinovsky, D. Javurek, A. Voljanskij</i>	
THE PROBLEM OF THE FORMULATION OF INTEGRAL PARAMETERS IN SOURCE-DRIVEN SYSTEMS: A CRITICAL EVALUATION	2598
<i>S. Dulla, P. Picca, D. Tomatis, P. Ravetto, M. Carta</i>	
MONTE CARLO ANALYSES OF THE SOURCE MULTIPLICATION FACTOR OF THE YALINA BOOSTER FACILITY	2607
<i>A. Talamo, Y. Gohar, I. Bolshinsky, F. Kondev, G. Aliberti, H. Kiyavitskaya, V. Bournos, Y. Fokov, C. Routkovskaya, I. Serafimovich</i>	
MINIMIZATION OF REACTOR DEAD TIME BY POWER MONITORING IN SLOW SHUT DOWN MODE	2613
<i>S. Kalcheva, E. Koonen, B. Ponsard</i>	
PREDICTION OF BURNUP FOR FUEL SAMPLE IRRADIATIONS IN THE HFR	2623
<i>S. C. Van Der Marck, A. Hogenbirk, J. Oppe</i>	
CONCEPT OF PERIODIC PULSED REACTOR FOR HIGH POWER LASERS WITH NUCLEAR PUMPING	2629
<i>A. V. Gulevich, P. P. Dyachenko, O. F. Kukharchuk, O. G. Fokina</i>	

TRACK 11. INTEGRAL EXPERIMENTS & ANALYSIS

17A2-11. INTEGRAL EXPERIMENTS AND ANALYSIS – I

A GLOBAL APPROACH TO THE PHYSICS VALIDATION OF SIMULATION CODES FOR FUTURE NUCLEAR SYSTEMS.....	2637
<i>G. Palmiotti, M. Salvatores, G. Aliberti, H. Hiruta, R. McKnight, P. Oblozinsky, W. S. Yang</i>	
ESTIMATION OF ACCURACY FOR CALCULATION OF NEUTRON FIELD DISTRIBUTION IN FAST REACTOR ON THE REACTOR EXPERIMENTS BASIS	2647
<i>A. V. Moiseyev, Yu. S. Khomyakov, A. L. Kotchetkov, M. Yu. Semyonov, A. S. Seryogin, A.M. Tsyboulyra</i>	
ANALYSIS OF METALLIC URANIUM FUELED BFS CRITICAL ASSEMBLIES WITH DIFFERENT EVALUATED NUCLEAR DATA FILES	2655
<i>J. Yoo, S.-J. Kim, Y.-I. Kim</i>	
ANALYSIS OF THE ZPPR-15 CRITICAL EXPERIMENTS WITH ENDF/B-V.2 AND ENDF/B-VII.0 DATA	2662
<i>S. J. Kim, W. S. Yang, C. Lee</i>	
BENCHMARK TEST FOR TRU NUCLEAR DATA BY ANALYSIS OF CENTRAL FISSION RATE RATIOS MEASURED AT FCA CORES	2670
<i>S. Okajima, M. Fukushima, T. Mukaiyama</i>	

17A3-11. MEASUREMENT TECHNIQUES

APPLICATION OF IMAGINARY SOURCE MULTIPLICATION METHOD TO SUBCRITICALITY MEASUREMENT	2677
<i>S. Kawaguchi, T. Misawa, C. H. Pyeon, S. Shiroya</i>	
MEASUREMENT OF FISSION RATE RATIOS IN FRESH UO ₂ FUEL UTILISING SHORT-LIVED HIGH- ENERGY GAMMA ACTIVITY	2685
<i>H. Kröhner, M. F. Murphy, G. Perret, M. Plaschy, J. Wagemans, R. Chawla</i>	
DEVELOPMENT OF OPTICAL FIBER DETECTOR FOR MEASUREMENT OF FAST NEUTRON	2693
<i>T. Yagi, T. Misawa, C. H. Pyeon, H. Unesaki, S. Shiroya, S. Kawaguchi, S. Okajima, K. Tani</i>	
FEASIBILITY OF REACTIVITY WORTH MEASUREMENTS BY PERTURBATION METHOD WITH CALIBAN AND SILÈNE EXPERIMENTAL REACTORS	2701
<i>P. Casoli, N. Authier</i>	

17P1-11. INTEGRAL EXPERIMENTS AND ANALYSIS

ANALYSIS OF CORE PHYSICS EXPERIMENTS ON IRRADIATED BWR MOX FUEL IN REBUS PROGRAM	2709
<i>T. Yamamoto, Y. Ando, Y. Hayashi</i>	
FISSION RATE DISTRIBUTION AT THE 84-PIN RADIAL SECTION OF A SVEA-96 OPTIMA2 BWR ASSEMBLY	2715
<i>G. Perret, M. F. Murphy, F. Jatuff, R. Chawla</i>	
EXPERIMENT AND ANALYSIS FOR CRITICALITY IN SMALL FAST REACTOR WITH REFLECTOR AT FCA	2721
<i>M. Fukushima, S. Okajima, T. Mori, T. Takeda, I. Kinoshita</i>	

SENSITIVITY ANALYSIS AND CROSS SECTIONS DATA ADJUSTMENT FOR MULTIGROUP TRANSPORT AND DIFFUSION.....	2728
<i>J.-J. Herrero, A. F. Badea, D. G. Cacuci</i>	
COMPARISON OF KINETIC PARAMETERS BASED ON CONTINUOUS ENERGY MONTE CARLO METHOD AND EVALUATED NUCLEAR DATA LIBRARIES FOR REACTIVITY OF MOX FUEL CORES.....	2735
<i>Y. Nauchi, T. Kameyama</i>	
WWER FUEL FAILURE ROOT CAUSES INVESTIGATION ON REACTOR LR-0.....	2743
<i>J. Mikuš</i>	
ROSSI α AND FEYNMANN Y METHODS IN ADS SYSTEMS WITH POISSONIAN AND NON POISSONIAN NEUTRON SOURCES.....	2751
<i>J. L. Muñoz-Cobo, J. Peña, E. González</i>	
VALIDATION OF MCNP5 USING ENDF/B-VI DATA AGAINST DEUTERIUM CRITICAL ASSEMBLY MEASUREMENTS.....	2761
<i>I. Attieh, L. Kirilovsky</i>	
THERMAL POWER MEASUREMENT BASED ON FEYNMAN-ALPHA CORRELATION ANALYSIS IN A LOW-POWER REACTOR.....	2769
<i>A. Miyoshi, H. Taninaka, K. Hashimoto</i>	
DETERMINATION OF SUBCRITICALITY AND EFFECTIVE SOURCE STRENGTH BY SOURCE DROP AND JERK EXPERIMENTS	2775
<i>H. Taninaka, K. Hashimoto</i>	
EVALUATION OF ACTIVATION DETECTORS FOR THE SPHINX PROJECT AT THE LR-0 EXPERIMENTAL REACTOR	2781
<i>Z. Lahodová, L. Viererbl, E. Novák, M. Švadlenková, V. Rypar</i>	
SUBCRITICALITY MEASUREMENT BY NEUTRON SOURCE MULTIPLICATION METHOD WITH HIGHER MODE ANALYSIS.....	2787
<i>T. Misawa, C. H. Pyeon</i>	
 <u>18A0-11. INTEGRAL EXPERIMENTS AND ANALYSIS – II</u>	
QUALIFICATION OF THE APOLLO2.8 CODE PACKAGE FOR THE CALCULATION OF THE FUEL INVENTORY AND REACTIVITY LOSS OF UOX SPENT FUELS IN BWRS.....	2793
<i>P. Leconte, J.-F. Vidal, D. Bernard, A. Santamarina, R. Eschbach, J.-P. Hudelot</i>	
ANALYSIS OF REACTIVITY WORTHS OF HIGHLY-BURNT PWR FUEL SAMPLES MEASURED IN LWR-PROTEUS PHASE II.....	2801
<i>P. Grimm, M. F. Murphy, F. Jatuff, R. Seiler</i>	
AREVA NP BURNUP CREDIT INVESTIGATION ON IRRADIATED MOX FUEL WITHIN THE REBUS BWR PROGRAMME.....	2807
<i>A. Alander, S. Misu, S. Thareau, W. Timm</i>	
BENCHMARKS ON EFFECTIVE DELAYED NEUTRON PARAMETERS AND REACTIVITY: A BRAZILIAN IPEN/MB-01 CONTRIBUTION TO THE IRPHE PROJECT.....	2814
<i>A. Dos Santos, R. Y. R. Kuramoto, R. Diniz, R. Jerez, G. S. De Andrade E Silva, M. Yamaguchi</i>	
VALIDATION OF MCNP AND WIMS-AECL/DRAGON/RFSP FOR ACR-1000 APPLICATIONS.....	2822
<i>B. P. Bromley, F. P. Adams, M. B. Zeller, D. G. Watts, B. V. Shukhman, J. Pencer</i>	
MCNP QUALIFICATION ON THE HTR CRITICAL CONFIGURATIONS: HTTR, HTR10 AND PROTEUS RESULTS.....	2829
<i>C. Trakas, G. Stoven</i>	
 <u>18A1-11. INTEGRAL EXPERIMENTS AND ANALYSIS – III</u>	
THE PERLE EXPERIMENT FOR THE QUALIFICATION OF PWR HEAVY REFLECTORS	2838
<i>A. Santamarina, C. Vaglio, P. Blaise, J.-C. Klein, N. Huot, O. Litaize, N. Thiollay, J.-F. Vidal</i>	
HEAVY REFLECTOR EXPERIMENT IN THE IPEN/MB-01 REACTOR	2844
<i>A. Dos Santos, R. Jerez, U. D'Utra Bitelli, L. C. C. B. Fanaro, G. S. De Andrade E Silva, R. Kuramoto, A. G. Mendonça, R. Fuga, A. Y. Abe, C. Vaglio-Gaudard</i>	
ANALYSIS OF THE FLUOLE EXPERIMENT FOR THE APOLLO2 VALIDATION OF PWR CORE REFLECTORS	2852
<i>J-F. Vidal, R. Le Tellier, P. Blaise, G. Guillot, N. Huot, O. Litaize, A. Santamarina, N. Thiollay, Claire Vaglio-Gaudard</i>	
NEW WWER BENCHMARK ON THE LR-0 EXPERIMENTAL REACTOR	2860
<i>S. M. Zaritsky, A. L. Egorov, A. V. Moryakov, B. Ošmera, M. Marik, F. Cvachovec</i>	
THE GUINEVERE PROJECT AT THE VENUS FACILITY	2867
<i>P. Baeten, H. Aït Abderrahim, T. Aoust, G. Bergmans, J. Heyse, D. Maes, B. Verboomen, F. Vermeersch, G. Vittiglio, G. Ban, M. Baylac, A. Billebaud, D. Bondoux, J. Bouvier, J. M. De Conto, P. Dessagne, G. Gaudiot, J. M. Gautier, D. Grondin, G. Heitz, M. Kerveno, B. Laune, F. R. Lecolley, J. L. Lecouey, D. Marchand, N. Marie, Y. Merrer, R. Micoud, M. Planet, D. Reynet, C. Ruescas, J. C. Steckmeyer, G. Granget, F. Mellier, G. Rimpault</i>	

TRACK 12. NUCLEAR STANDARDS & BENCHMARKS

16C1-12. CODE VALIDATION AND BENCHMARKS

IMPROVEMENT OF THE EXPERIMENTAL VALIDATION OF THE DARWIN CODE SYSTEM DUE TO THE JEFF3.1 LIBRARY FOR UOX SPENT FUEL INVENTORY AND DECAY HEAT CALCULATION – SYNTHESIS OF THE TENDENCIES OBTAINED WITH THE MALIBU INTERNATIONAL BENCHMARK AND THE FRENCH POST-IRRADIATION EXAMINATION DATABASE	2874
<i>R. Eschbach, C. Riffard, L. S. Felice, P. Marimbeau, C. Venard, F. Laugier, J.-F. Thro</i>	
TORT SOLUTIONS TO THE NEA SUITE OF BENCHMARKS FOR 3D TRANSPORT METHODS AND CODES OVER A RANGE IN PARAMETER SPACE	2882
<i>K. B. Bekar, Y. Y. Azmy</i>	
INTEGRAL BENCHMARKS AVAILABLE THROUGH THE INTERNATIONAL REACTOR PHYSICS EXPERIMENT EVALUATION PROJECT AND THE INTERNATIONAL CRITICALITY SAFETY BENCHMARK EVALUATION PROJECT	2889
<i>J. B. Briggs, L. Scott, E. Sartori, Y. Rugama</i>	
IAEA COORDINATED RESEARCH PROJECT (CRP) ON “ANALYTICAL AND EXPERIMENTAL BENCHMARK ANALYSES OF ACCELERATOR DRIVEN SYSTEMS”	2897
<i>A. Abñades, G. Aliberti, V. Bornos, M. Carta, Y. Gohar, J. Janczyszyn, A. Kiyavitskaya, J. Maiorino, C. Pyeon, A. Stanculescu, A. Talamo, Y. Titarenko, W. Westmeier</i>	
A BENCHMARK SOLUTION FOR HEAVY GALACTIC COSMIC ION CASCADE	2905
<i>B. D. Ganapol, L. W. Townsend</i>	

16P1-12. REACTOR PHYSICS BENCHMARKS

IDT SOLUTION TO THE 3D TRANSPORT BENCHMARK OVER A RANGE IN PARAMETER SPACE	2914
<i>I. Zmijarevic</i>	
SUMMARY OF RESULTS FOR THE VENUS-7 BENCHMARK	2922
<i>W. Zwermann, S. Langenbuch, B. Na, E. Sartori, U. Wehmann</i>	
BENCHMARK ON COMPUTER SIMULATION OF RADIOACTIVE NUCLIDES PRODUCTION RATE AND HEAT GENERATION RATE IN A SPALLATION TARGET	2928
<i>W. Pohorecki, J. Janczyszyn, G. Domanska</i>	
REQUIREMENTS FOR REACTOR PHYSICS DESIGN	2935
<i>D. J. Diamond</i>	
EXCITATION FUNCTIONS FOR THE $^{NAT}SN(P,X)^{111}IN$, $^{NAT}SN(P,X)^{117M}SN$, $^{NAT}ZR(P,X)^{86}Y$, AND $^{NAT}ZR(P,X)^{89G}ZR$ NUCLEAR REACTIONS	2944
<i>M. U. Khandaker, K. Kim, M. Lee, K.-S. Kim, G. Kim, Y.-S. Cho, Y.-O. Lee</i>	
MEASUREMENTS OF 14.1 MEV NEUTRON REFLECTION AND TRANSMISSION FOR CARBON, POLYETHYLENE, AND STEEL	2951
<i>B. Grogan, S. McConchie, J. Mihalczo, J. Mullens</i>	

17E3-12. STANDARDS AND REGULATORY PRACTICES

NRC REGULATORY PRACTICES IN REACTOR PHYSICS CODE REVIEWS	2958
<i>A. C. Attard</i>	
ADVANCES IN U.S. REACTOR PHYSICS STANDARDS	2964
<i>D. Cokinos</i>	
A NEW DECAY HEAT STANDARD PROPOSITION BASED ON A TECHNICAL SPECIFICATIONS GUIDE FOR COMPUTATION CODES	2972
<i>F. Laugier, C. Diop, S. Ebaldar, C. Garzenne, A. Sargeni</i>	
CREATING BROAD ACCEPTANCE OF NOVEL NUCLEAR CONCEPTS (A PROGRESS REPORT ON RELEVANT ISTC PROGRAMS)	2980
<i>L. V. Tocheny</i>	

TRACK 13. FUEL & MATERIALS BEHAVIOUR

18E0-13. LWR FUEL PERFORMANCE

AXIAL GAS TRANSPORT AND LOSS OF PRESSURE AFTER BALLOONING RUPTURE OF HIGH BURN-UP FUEL RODS SUBJECTED TO LOCA CONDITIONS	2987
<i>W. Wiesenack, L. Kekkonen, B. Oberländer</i>	
BEHAVIOR OF 66 TO 77 MWD/KG FUEL CLADDING UNDER LOCA CONDITIONS	2993
<i>F. Nagase, T. Chuto, T. Fuketa</i>	
MIXED-OXIDE (MOX) FUEL PERFORMANCE BENCHMARKS	3000
<i>L. J. Ott, T. Tverberg, E. Sartori</i>	
FAILURE OF HIGH BURNUP FUELS UNDER REACTIVITY-INITIATED ACCIDENT CONDITIONS	3009
<i>T. Sugiyama, M. Umeda, T. Fuketa, H. Sasajima, Y. Udagawa, F. Nagase</i>	

ON THE USE OF THE FALCON CODE FOR MODELING THE BEHAVIOUR OF HIGH BURN-UP BWR FUEL DURING THE LS-1 PULSE-IRRADIATION TEST	3017
<i>G. Khvostov, M. A. Zimmermann, T. Sugiyama, T. Fuketa</i>	
POST TEST ANALYSES OF CABRI UO₂ TESTS WITH TESPA-ROD	3025
<i>H. G. Sonnenburg</i>	

18E1-13. DESIGN AND PERFORMANCE OF ADVANCED FUELS

RELATIVE RELEASE-TO-BIRTH INDICATORS FOR INVESTIGATING TRISO FUEL FISSION GAS RELEASE MODELS	3032
<i>J. M. Harp, A. I. Hawari</i>	
DEVELOPMENT OF A STRESS ANALYSIS CODE FOR TRISO PARTICLES IN HTRs	3040
<i>J. Jonnet, J. L. Kloosterman, B. Boer</i>	
VERIFICATION OF THE TRANSRANUS BURN-UP MODEL FOR WWER FUEL AND (U,GD)O₂ FUEL	3048
<i>A. Schubert, C. Gyori, J. Van De Laar, S. Bzuni, T. Safaryan, T. Tverberg, J.-C. Kim, Paul Van Uffelen</i>	
HIGH TEMPERATURE KNUDSEN CELL MASS SPECTROSCOPY STUDIES ON DYSPROSIUM-DOPED URANIUM DIOXIDE	3056
<i>S. Sunder, C. M. M. Thiriet, R. F. O'Connor, R. T. Peplinskie</i>	
SUMMARY OF IRRADIATION TESTS OF MIXED OXIDE FUEL PREPARED WITH WEAPONS-DERIVED PLUTONIUM	3064
<i>L. J. Ott, D. J. Spellman</i>	

TRACK 14. FACILITIES FOR SAFETY RESEARCH

17E2-14. FACILITIES FOR SAFETY RESEARCH

RELAP5 ANALYSIS OF OECD/NEA ROSA PROJECT EXPERIMENT SIMULATING A PWR SMALL BREAK LOCA WITH HIGH-POWER NATURAL CIRCULATION	3073
<i>T. Takeda, H. Asaka, H. Nakamura</i>	
THE DRAGON AEROSOL RESEARCH FACILITY TO STUDY AEROSOL BEHAVIOUR FOR REACTOR SAFETY APPLICATIONS	3081
<i>D. Suckow, S. Güntay</i>	
ABOUT THE VOLATILITY OF BORON IN AQUEOUS SOLUTIONS OF BORATES WITH VAPOUR IN RELEVANCE TO BWR-REACTORS	3089
<i>S. Böhlke, C. Schuster, A. Hurtado</i>	
FUEL SAFETY EXPERIMENTS IN THE JULES HOROWITZ REACTOR: DEDICATED LOOPS FOR LOSS OF COOLANT ACCIDENTS - TYPE TRANSIENTS	3097
<i>S. Gaillot, D. Parrat, C. Gonnier, J. P. Chauvin</i>	
PANDA: A LARGE SCALE MULTI-PURPOSE FACILITY FOR LWR SAFETY RESEARCH	3105
<i>J. Dreier, M. Huggenberger, D. Paladino, G. Yadigaroglu, M. Andreani</i>	

17P1-14. FACILITIES FOR SAFETY RESEARCH

NEW ANALYSIS OF THE EIR GFR THERMAL-HYDRAULIC EXPERIMENTS	3115
<i>A. Epiney, P. Coddington, K. Mikityuk, R. Chawla</i>	
HIGH-SPEED LIQUID FILM SENSOR WITH HIGH SPATIAL RESOLUTION FOR THERMAL HYDRAULIC EXPERIMENTS	3123
<i>M. Damsohn, H. M. Prasser</i>	

TRACK 15. RADIATION APPLICATIONS & NUCLEAR SAFEGUARDS

16E2-15. RADIATION APPLICATIONS FOR NUCLEAR SAFEGUARDS

VERIFICATION OF COMPLETENESS OF SPENT NUCLEAR FUEL ASSEMBLIES BY MEANS OF TOMOGRAPHY	3131
<i>S. Jacobsson Svärd, T. Lundqvist Saleh, A. Häkansson</i>	
ANALYSIS OF THE RESPONSE OF THE CAPTURE-GATED ORGANIC SCINTILLATOR BC-523A	3138
<i>M. Flaska, S. A. Pozzi, P. Schillebeeckx</i>	
REACTOR ANTINEUTRINO DETECTION FOR THERMAL POWER MEASUREMENT AND NON-PROLIFERATION PURPOSES	3145
<i>A. Porta, A. Letourneau, D. Lhuillier, T. Mueller</i>	
ASSESSING THE RADIOLOGICAL RISK OF EXPERIMENTS WITH A PULSED NEUTRON SOURCE	3153
<i>G. Memoli, J. P. Martin Trusler, A. K. Ziver</i>	
SENSITIVITY OF PHOTONEUTRON PRODUCTION TO PERTURBATIONS IN CROSS-SECTION DATA	3161
<i>S. D. Clarke, S. A. Pozzi, T. J. Downar</i>	

16E3-15. RADIATION APPLICATIONS IN MEDICINE AND INDUSTRY

ACTIVITIES OF THE COMPUTATIONAL MEDICAL PHYSICS WORKING GROUP	3169
<i>B. L. Kirk, G. Sjoden, A. Haghigat</i>	
MONTE-CARLO SIMULATIONS IN THE CONTEXT OF REACTOR MONITORING WITH ANTINEUTRINOS	3176
<i>L. Giot, M. Fallot, B. Guillon, J. Martino</i>	
DELAYED GAMMA STUDIES FROM PHOTO-FISSION OF ^{237}NP FOR NUCLEAR WASTE CHARACTERIZATION	3184
<i>P. M. Dighe, E. Berthoumieux, D. Doré, J. M. Laborie, X. Ledoux, V. Macary, S. Panebianco, D. Ridikas</i>	
CALCULATION SUPPORT FOR INDUSTRIAL PRODUCTION OF COBALT-60 AT LENINGRAD NPP	3191
<i>V. Artemov, A. Elshin, A. Ivanov, E. Gorbunov, R. Ikonnikov, A. Pimenov</i>	

TRACK 16. NUCLEAR POWER & SUSTAINABLE DEVELOPMENT

17A1-16. NUCLEAR POWER AND SUSTAINABLE DEVELOPMENT – I

SUSTAINABILITY OF URANIUM SOURCES	3197
<i>H.-M. Prasser, A.-S. Bayard, R. Dones</i>	
STRUCTURE, CONDUCT, AND SUSTAINABILITY OF THE INTERNATIONAL LOW-ENRICHED FUEL FABRICATION INDUSTRY	3210
<i>G. Rothwell</i>	
ECONOMY OF URANIUM RESOURCES IN A THREE-COMPONENT REACTOR FLEET WITH MIXED THORIUM/URANIUM FUEL CYCLES	3216
<i>J. N. Wilson, A. Bidaud, N. Capellan, R. Chambon, S. David, P. Guillemin, E. Ivanov, A. Nuttin, O. Meplan</i>	
A PARAMETERIZATION OF THE NEUTRONIC CHARACTERISTICS OF RECYCLABLE URANIUM	3223
<i>E. Schneider, A. Scopatz</i>	
DANESS V4.0: AN INTEGRATED NUCLEAR ENERGY SYSTEM ASSESSMENT CODE	3231
<i>L. Van Den Durpel, A. Yacout, D. Wade, T. Taiwo</i>	

17P1-16. NUCLEAR POWER AND SUSTAINABLE DEVELOPMENT

A METHODOLOGY FOR COMPARATIVE ASSESSMENT OF ENERGY OPTIONS: THE CASE OF MEXICO	3239
<i>C. Martin-Del-Campo, J.-L. François</i>	
ANALYSIS OF NEW CHALLENGES IN NON-PROLIFERATION EDUCATION	3250
<i>W. Charlton, K. L. Peddicord, N. Geraskin, E. Kryuchkov, I. A. Vorobieva, D. Klinov</i>	

18D0-16. NUCLEAR POWER AND SUSTAINABLE DEVELOPMENT – II

NUCLEAR ENERGY RISKS AND BENEFITS IN PERSPECTIVE	3255
<i>S. Hirschberg</i>	
GLOBAL ENERGY CHALLENGES OF THE XXI CENTURY AND NUCLEAR ENERGY	3265
<i>A. Gagarinskiy</i>	
NUCLEAR POWER & SUSTAINABLE DEVELOPMENT: A VISION FROM A DEVELOPING COUNTRY	3270
<i>M. Sbaaffoni, S. Harriague</i>	
FINDING SYNERGY BETWEEN LOCAL COMPETITIVENESS AND GLOBAL SUSTAINABILITY TO PROVIDE A FUTURE TO NUCLEAR ENERGY	3277
<i>L. Van Den Durpel, A. Yacout, D. Wade</i>	
RESEARCH AND TRAINING SUPPORTING REACTOR SYSTEMS IN THE EURATOM FRAMEWORK PROGRAMMES	3283
<i>M. Hugon, V. Bhatnagar, M. Deffrennes, P. Manolatos, G. Van Goethem</i>	
SUSTAINABLE NUCLEAR POWER – THE HUMAN DIMENSION	3291
<i>K. L. Peddicord, J. W. Poston Sr., T. D. Sayko, J. Porter, W. D. Reece, B. Earl, N. Ostroskaya, M. Lagoudas, J. Crenshaw, W. Jump, C. Fenner, K. Lowery, S. Sieben, L. Jones, D. Ridge, D. Robertson, C. Hyde, K. John, W. Kinnison, K. Harris, S. Aghara, F. Pezold, B. Bird, B. Rice</i>	

18D1-16. NUCLEAR POWER AND SUSTAINABLE DEVELOPMENT – III

FUEL CYCLE OPTIONS AND SUSTAINABILITY FOR NEW NUCLEAR BUILD IN THE UK	3295
<i>K. Hesketh, M. Thomas, A. Worrall</i>	
ECONOMICS OF SYMBIOTIC NUCLEAR FLEETS AT EQUILIBRIUM	3303
<i>A. Bidaud, D. Lecarpentier, P. Guillemin</i>	
ACHIEVING SUSTAINABILITY IN FUEL CYCLES WITH TH-FUELLED THERMAL BREEDERS	3311
<i>K. Tucek, J. Carlsson, H. Wider</i>	
SUSTAINABILITY OF ELECTRICITY SUPPLY TECHNOLOGY PORTFOLIO	3319
<i>S. Roth, S. Hirschberg, C. Bauer, P. Burgherr, R. Dones, T. Heck, W. Schenler</i>	

ENVIRONMENTAL ASSESSMENT OF CURRENT AND FUTURE SWISS ELECTRICITY SUPPLY OPTIONS	3329
<i>C. Bauer, R. Dones, T. Heck, S. Hirschberg</i>	

WORKSHOPS

ADVANCES IN MONTE CARLO CALCULATIONS

MONTE CARLO – ADVANCES AND CHALLENGES	3337
<i>F. B. Brown, W. R. Martin, R. D. Mosteller</i>	

REACTORS FOR ACTINIDE MANAGEMENT

TRU RECYCLING IN BWR TYPE REACTOR OF FLWR WITH HARD SPECTRUM	3338
<i>T. Okubo, Y. Nakano, Y. Fukaya, N. Kobayashi, S. Uchikawa</i>	

REACTOR PHYSICS AND SAFETY ASPECTS OF FAST NEUTRON REACTORS WITH ASSOCIATED CLOSED FUEL CYCLE	3341
<i>B. Raj, P. Mohanakrishnan</i>	

JAPANESE FAST REACTOR PROGRAM FOR HOMOGENEOUS ACTINIDE RECYCLING	3368
<i>M. Ishikawa, T. Nagata, S. Kondo</i>	

HETEROGENEOUS RECYCLING IN SFR CORE PERIPHERY	3376
<i>F. Varaine, L. Buiron, L. Boucher, C. Chabert</i>	

ACTINIDE RECYCLING : TECHNICAL CONSTRAINTS AND PERFORMANCE LIMITS. IMPACT OF MAIN REACTOR PHYSICS PARAMETERS ON ACTINIDE MANAGEMENT	3383
<i>A. Zaetta</i>	

Author Index