

International Nuclear Atlantic Conference (INAC 2017)

Nuclear Energy for National Projects

Minas Gerais, Brazil
22-27 October 2017

Volume 1 of 8

ISBN: 978-1-7138-3560-8

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© (2017) by Associacao Brasileira de Energia Nuclear (ABEN)
All rights reserved.

Printed by Curran Associates, Inc. (2021)

For permission requests, please contact Associacao Brasileira de Energia Nuclear (ABEN)
at the address below.

Associacao Brasileira de Energia Nuclear (ABEN)
Rua Candelária, nº 65, 14º andar - Centro,
Rio de Janeiro (RJ) - CEP 20.091-906
Brazil

Phone: (21) 2266-0480

www.aben.com.br

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

VOLUME 1

XX ENFIR

R01 NUCLEAR REACTOR PHYSICS

A CONTINUOUS ENERGY NEUTRON TRANSPORT MONTE CARLO SIMULATOR PROJECT: DECOMPOSITION OF THE NEUTRON ENERGY SPECTRUM BY TARGET NUCLEI TAGGING	1
<i>Luiz Felipe F. Chaves Barcellos, Bardo E. J. Bodmann, Marco Tulio M. B. Vilhena, Sergio Q. Bogado Leite</i>	
ANALYSIS OF BURNUP OF ANGRA 2 PWR NUCLEAR REACTOR WITH ADDITION OF THORIUM DIOXIDE FUEL USING ORIGEN-ARP.....	9
<i>Isadora C. Goncalves, Caio C. Wichrowski, Camila O. Baptista, Claudio L. Oliveira, Sergio O. Vellozo</i>	
ANALYSIS OF THE NEUTRON FLUX IN AN ANNULAR PULSED REACTOR BY USING FINITE VOLUME METHOD	17
<i>Mario Silva, Jair L. Bezerra, Rajendra Narain</i>	
ARTIFICIAL NEURAL NETWORKS FOR SPATIAL DISTRIBUTION OF FUEL ASSEMBLIES IN RELOAD OF PWR REACTORS	26
<i>Claudia Pereira, Carlos E. Velasquez, Edyene Cely A. Oliveira, Victor Faria De Castro</i>	
ASSESSMENT OF THE INSERTION OF REPROCESSED FUEL SPIKED WITH THORIUM IN A PWR CORE.....	38
<i>Claudia Pereira, Fabiana B. A. Monteiro, Victor F. Castro</i>	
CRITICALITY ANALYSIS FOR MIXED THORIUM-URANIUM FUEL IN THE ANGRA 2 PWR REACTOR USING KENO-VI.....	48
<i>Caio C. Wichrowski, Camila O. Baptista, Claudio L. Oliveira, Isadora C. Goncalves, Sergio O. Vellozo</i>	
DECAY HEAT CALCULATIONS FOR THE FUEL LOADED IRRADIATION LOOP DEVICE OF THE RMB MULTIPURPOSE BRAZILIAN REACTOR	57
<i>Daniel Campolina, Antonio Carlos L. Costa, Edison Pereira Andrade</i>	
EIGENVALUE SENSITIVITY ANALYSIS & UNCERTAINTY QUANTIFICATION IN SCALE6.2.1 USING CONTINUOUS-ENERGY MONTE CARLO METHOD	64
<i>Antonella Labarile, Claudia Pereira, Gumersindo Verdu, Rafael Miro Herrero, Teresa Barrachina</i>	
EMPIRICAL MODEL FOR MEAN GENERATION TIME ADJUSTMENT FACTOR FOR CLASSIC POINT REACTOR KINETICS EQUATIONS.....	75
<i>David A. B. V. Goes, Alessandro C. Goncalves, Aquilino S. Martinez</i>	
LIQUID METAL COOLANTS FOR FUSION-FISSION HYBRID SYSTEM – A NEUTRONIC ANALYSIS	87
<i>Claudia Pereira, Antonella L. Costa, Carlos E. Velasquez, Graiciany P. Barros, Maria Auxiliadora F. Veloso, Renato V. A. Marques</i>	

MODIFIED MEAN GENERATION TIME PARAMETER IN THE NEUTRON POINT KINETICS EQUATIONS	102
<i>Rodrigo C. Diniz, Alessandro C. Goncalves, Felipe S. S. Rosa</i>	
NEUTRONIC ANALYSIS OF A FUEL ELEMENT WITH VARIATIONS IN FUEL ENRICHMENT AND BURNABLE POISON	118
<i>Claudia Pereira, Angela Fortini, Carlos E. Velasquez, Fabiano Cardoso, Felipe Martins, Rochkhudson B. Faria</i>	
NEUTRONIC EVALUATION OF TRANSURANICS IN A GFR MODEL USING MCNPX AND SCALE 6.0	128
<i>Claudia Pereira, Anderson A. P. Macedo, Carlos E. Velasquez, Clarysson A. M. Da Silva, Fabiano Cardoso, Victor F. Castro</i>	
NUCLEAR DATA PROCESSING FOR CROSS-SECTIONS GENERATION FOR FUSION- FISSION, ADS, AND IV GENERATION REACTORS UTILIZATION	138
<i>Claudia Pereira, Antonella L. Costa, Carlos E. Velasquez, Lorena C. Fernandes, Maria Auxiliadora F. Veloso</i>	
ON THE NEUTRON SLOWING-DOWN IN MODERATORS	149
<i>Alexandre D. Caldeira</i>	
SENSIBILITY ANALYSIS OF FUEL DEPLETION USING DIFFERENT NUCLEAR FUEL DEPLETION CODES	155
<i>Claudia Pereira, Carlos E. Velasquez, Clarysson A. M. Da Silva, Felipe Martins, Victor F. Castro</i>	
SIMULATION OF THE BURNUP IN CELL CALCULATION USING THE WIMSD-5B CODE CONSIDERING DIFFERENT NUCLEAR DATA LIBRARIES	168
<i>Desiree Y De Sena Tavares, Adilson Costa Silva, Zelmo R. De Lima</i>	
THE TSALLIS STATISTICS APPLIED TO THE CALCULATION OF ABSORPTION CROSS SECTION OF 238U, 232TH AND 240PU ISOTOPES	183
<i>Guilherme Guedes De Almeida, Alessandro C. Goncalves, Daniel A. P. Palma</i>	
THERMAL NEUTRON FLUX MEASUREMENTS IN THE ROTARY SPECIMEN RACK OF THE IPR-R1 TRIGA REACTOR	195
<i>Rose Mary G. P. Souza, Luiz Claudio A. Souza, Rogerio R. Rodrigues</i>	
 <u>R02 NUCLEAR REACTOR THERMAL HYDRAULICS</u>	
5X5 ROD BUNDLE FLOW FIELD MEASUREMENTS DOWNSTREAM A PWR SPACER GRID	202
<i>Higor F. P. Castro, Andre A. C. Santos, Maria A. F. Veloso, Vitor V. A. Silva</i>	
A COMPARATIVE STUDY OF BORON TRANSPORT MODELS IN NRC THERMAL- HYDRAULIC CODE TRACE.....	215
<i>Nicolas Olmo-Juan, Claudia Pereira, Gumersindo Jesus Verdu Martin, Rafael Miro Herrero, Teresa Maria Barrachina Celda</i>	
A SIMPLE CAPACITANCE SENSOR FOR VOID FRACTION MEASUREMENT IN GAS- LIQUID TWO-PHASE FLOW	228
<i>Luiz Carlos R. Pereira Da Silva, Jian Su, Jose Luiz H. Faccini, Marcos S. Farias</i>	

A THERMAL HYDRAULIC ANALYSIS IN PWR REACTORS WITH UO ₂ OR (U-TH)O ₂ FUEL RODS EMPLOYING A SIMPLIFIED CODE.....	237
<i>Thiago Santos, Giovanni Laranjo De Stefanni, Jose Rubens Maiorino</i>	
ANALYSIS OF TRANSIENT HEAT CONDUCTION IN A PWR FUEL ROD BY AN IMPROVED LUMPED PARAMETER APPROACH.....	247
<i>Eneida Regina G Dourado, Renato M Cotta, Su Jian</i>	
BREAK LOCATION INFLUENCE IN PRESSURE VESSEL SBLOCA SCENARIOS	257
<i>Sergio Gallardo, Andrea Querol, Gumersindo Verdu</i>	
CHF PREDICTION IN ROD BUNDLES USING ROUND TUBE DATA	269
<i>Maria Auxiliadora F. Veloso, Antonella L. Costa, Cláudia Pereira, Wallen F. Souza</i>	
COMPARISON BETWEEN RELAP5 VERSIONS FOR A TWO-PHASE NATURAL CIRCULATION ANALYSIS	278
<i>Francisco Antonio Braz Filho, Alexandre D. Caldeira, Gaiane Sabundjian, Guilherme B. Ribeiro</i>	
COMPARISON OF DRIFT-VELOCITY AND DRAG COEFFICIENT APPROACHES FOR ONE-DIMENSIONAL TWO-FLUID MODELS IN BUBBLY FLOW REGIME AND VALIDATION WITH EXPERIMENTAL DATA	285
<i>Consuelo Gomez-Zarzuela Quel, Carlos Pena-Monferrer, Gumersindo Verdu Martin, Jose Luis Munoz-Cobo, Rafael Miro Herrero, Sergio Chiva Vicent</i>	
COMPARISON WITH THE TEMPERATURE DISTRIBUTIONS BETWEEN AN ANNULAR FUEL RODS OF CIRCULAR CROSS-SECTION AND THOSE OF CROSS-SECTION WITH HEMOGLOBIN FORMAT FOR REACTORS PWRs IN STEADY STATE.	302
<i>Maria Vitoria Aguiar De Oliveira, Antonio Carlos Marques Alvim</i>	
CRUD FORMATION EVALUATION AT THE ADVANCED FUEL OPERATING IN ANGRA 1 NPP.....	311
<i>Franklin L Palheiros, Diego Gomez</i>	
DEVELOPMENT OF A PID-FUZZY CONTROLLER IN THE WATER LEVEL CONTROL OF A PRESSURIZER OF A NUCLEAR REACTOR.....	323
<i>Thiago S. P. Brito, Carlos A. B. O. Lira, Wagner E. Vasconcelos</i>	
DEVELOPMENT OF A THERMAL-HYDRAULIC CODE FOR REFLOOD ANALYSIS IN A PWR EXPERIMENTAL LOOP	336
<i>Amir Zacarias Mesquita, Daniel Arthur Pinheiro Palma, Hugo Cesar Rezende, Sabrina Priscila Alves Silva</i>	
EFFECT OF HIGH DOSES OF GAMMA RADIATION ON THERMOPHYSICAL PROPERTIES OF ZRO ₂ NANOFUIDS IN AQUEOUS BASE.....	346
<i>Marcelo Da Silva Rocha, Priscila Gomes Moreira De Pinho</i>	
EVALUATION OF THE ANGRA 2 NUCLEAR POWER PLANT USING A RELAP5-PARCS COUPLED MODEL	356
<i>Antonella L Costa, Adolfo R. Hamers, Cláudia Pereira, Gumersindo Verdu, Maria A. F. Veloso, Patricia A. L. Reis, Raphael Miro</i>	
MAIN CONSIDERATIONS FOR MODELLING A STATION BLACKOUT SCENARIO WITH TRACE.....	363
<i>Sergio Gallardo, Andrea Querol, Gumersindo Verdu, Jara Turegano, Maria Lorduy</i>	

MODERNIZED CDTN'S AIR-WATER EXPERIMENTAL TEST CIRCUIT: INITIAL RESULTS	375
<i>Marcio Araujo Pessoa, Andre Augusto Campagnole Dos Santos, Arthur Francisco Jorge Ferreira, Eduardo Abreu Salomao, Mauricio Rodrigues Da Silva Sobrinho, Moyses Alberto Navarro</i>	
NUMERICAL SIMULATION STUDY ON THE AIR/WATER COUNTERCURRENT FLOW LIMITATION IN NUCLEAR REACTORS.....	385
<i>Youssef Morghi, Amir Zacarias Mesquita, Ana Rosa Baliza, Jesus Alfonso Puente Angulo</i>	
SIMULATION OF A PASSIVE AUXILIARY FEEDWATER SYSTEM WITH TRACE5	398
<i>Sergio Gallardo, Gumersindo Verdu, Jara Turegano, Maria Lorduy</i>	
SPENT FUEL POOL THERMAL-HYDRAULIC ANALISYS USING RELAP5-3D	408
<i>Claubia Pereira, Antonella Lombardi Costa, Fernando Pereira, Gustavo Henrique Nazareno Fernandes, Mario Cerrogrande Ramos</i>	
STEADY STATE HTTR MODEL IN THE RELAP5-3D.....	418
<i>Antonella L Costa, Claubia Pereira, Maria A. F. Veloso, Maria E Scari, Patricia A. L. Reis</i>	
TECHNICAL AND ECONOMIC FEASIBILITY STUDY FOR THE REACTIVATION OF THE INTEGRAL TEST FACILITY OF IPEN / CNEN NUCLEAR ENGINEERING CENTER.....	432
<i>Flavia Paladino Biaty, Marcelo S. Rocha, Otavio L. Oliveira</i>	
THERMAL HYDRAULIC CORE SIMULATION OF THE MYRRHA REACTOR IN STEADY STATE OPERATION.....	443
<i>Antonella L Costa, Athos M. S. S. Carvalho, Carlos E. V. Cabrera, Claubia Pereira, Gustavo H. N. Fernandes, Mario C. Ramos</i>	
THERMAL-HYDRAULIC CODE FOR ESTIMATING SAFETY LIMITS OF NUCLEAR REACTORS WITH PLATE TYPE FUELS	457
<i>Duvan Alejandro Castellanos, Joao Losada Moreira, Jose Rubens Maiorino, Pedro Carajilescov, Pedro R. Rossi</i>	
THERMAL-HYDRAULICS ANALYSIS OF A PWR REACTOR USING ZIRCALOY AND CARBIDE SILICON REINFORCED WITH TYPE S FIBERS AS FUEL CLADDINGS - SIMULATION OF A CHANNEL BLOCKAGE TRANSIENT.....	469
<i>Claubia Pereira, Antonella Lombardi Costa, Mario Cerrogrande Ramos, Patricia Amelia Lima Reis, Rochkhudson B. Faria, Vinicius Matuck</i>	
THERMOHYDRAULIC MODELING OF VERY HIGH TEMPERATUREREACTORS IN REGIMES WITH LOSS OF COOLANT USING CFD	481
<i>Uebert G. Moreira, Carlos R. G. Hernandez, Carlos A. B. O. Lira, Dany S. Dominguez, Leorlen Y. R. Mazaira</i>	
TRANSIENT HEAT TRANSFER ANALYSIS UP TO DRYOUT IN 3D FUEL RODS UNDER UNIDEAL CONDITIONS THROUGH THE DEVELOPMENT OF A COMPUTER CODE	492
<i>Rodolfo I. Martins, Maria De Lourdes Moreira, Paulo A. B. De Sampaio, Renato R. W. Affonso</i>	
TRANSIENT MODELLING OF A NATURAL CIRCULATION LOOP UNDER VARIABLE PRESSURE	510
<i>Andre L. B. Vianna, Jian Su, Jose L. H. Faccini</i>	
TRISO FUEL THERMAL SIMULATIONS IN THE LS-VHTR.....	525
<i>Antonella L Costa, Claubia Pereira, Maria E. Scari, Maria A. F. Veloso, Mario C. Ramos</i>	

TWO-DIMENSIONAL TRANSIENT THERMAL ANALYSIS OF A FUEL ROD BY FINITE VOLUME METHOD.....	537
<i>Rhayanne Yalle Negreiros Costa, Carlos A. B. De O. Lira, Mario A. B. Da Silva</i>	

R03 APPLIED MATHEMATICS AND COMPUTATION

A RESPONSE MATRIX METHOD FOR SLAB-GEOMETRY DISCRETE ORDINATES ADJOINT CALCULATIONS IN ENERGY-DEPENDENT SOURCE-DETECTOR PROBLEMS	552
<i>Ralph Dos Santos Mansur, Carlos Antonio De Moura, Ricardo Carvalho De Barros</i>	

ANALYTICAL REPRESENTATION OF THE SOLUTION OF THE SPACE KINETIC DIFFUSION EQUATION IN A ONE-DIMENSIONAL AND HOMOGENEOUS DOMAIN	563
<i>Fernanda Tumelero, Bardo E. J. Bodmann, Celso M. F. Lapa, Marco T. Vilhena</i>	

APPROXIMATE ALBEDO BOUNDARY CONDITIONS FOR ENERGYMULTIGROUP X,Y-GEOMETRY DISCRETE ORDINATES NUCLEARGLOBAL CALCULATIONS	573
<i>Davi Jose Martins Silva, Carlos Eduardo Araujo Nunes, Hermes Alves Filho, Ricardo Carvalho Barros</i>	

CALCULATION OF NEUTRON INTERIOR SOURCE DISTRIBUTION WITHIN SUBCRITICAL FISSION-CHAIN REACTING SYSTEMS FOR A PRESCRIBED POWER DENSITY GENERATION.	581
<i>Leonardo C Rodrigues, Hermes A. Filho, Ricardo C. Barros</i>	

CLUSTER PROCESSING BUSINESS LEVEL MONITOR	595
<i>Francisco J. Muniz</i>	

DEVELOPMENT AND APPLICATION OF THE PCRELAP5 - DATA CALCULATION PROGRAM FOR RELAP 5 CODE	598
<i>Larissa J B Silvestre, Gaiane Sabundjian</i>	

DYNAMIC LOAD-BALANCING- EXTENDED GRADIENT MECHANISM - GRAPHIC REPRESENTATION	610
<i>Francisco J. Muniz</i>	

GENERALIZATION OF SPECTRAL GREEN'S FUNCTION NODAL METHOD FOR SLAB-GEOMETRY FIXED-SOURCE ADJOINT TRANSPORT PROBLEMS IN S_N FORMULATION	614
<i>Jesus Perez Curbelo, Carlos R. Garcia Hernandez, Odair P. Da Silva, Ricardo C. Barros</i>	

NYSTROM METHOD APPLIED TO THE INTEGRAL FORMULATION OF NEUTRON TRANSPORT EQUATION IN X-Y GEOMETRY	628
<i>Fabio S. Azevedo, Esequia Sauter, Liliane B. Barichello, Mark Thompson, Pedro H. A. Konzen</i>	

NYSTROM METHOD IN TRANSPORT THEORY	637
<i>Debora Dalmolin, Esequia Sauter, Fabio S Azevedo</i>	

ON THE RADIATIVE-CONDUCTIVE SOLUTION IN CONTINUOUS HETEROGENEOUS GREY PLANE-PARALLEL PARTICIPATING MEDIUM	644
<i>Felipe L Valerio, Cynthia F. Segatto, Marco T. Vilhena, Rubem M. F. Vargas</i>	

PROFESSIONAL CLUSTER MANAGEMENT BY A SMALL SCIENTIFIC TEAM: CHALLENGES, SOLUTIONS AND PERSPECTIVES.	654
<i>Vitor Silva, Andre Augusto Campagnole Dos Santos, Renan Cunha</i>	

SOLUTION FOR THE MULTIGROUP NEUTRON SPACE KINETICS EQUATIONS BY THE MODIFIED PICARD ALGORITHM	665
<i>Matheus Guarte Tavares, Claudio Zen Petersen, Marcelo Schramm, Rodrigo Zanette</i>	
SOLUTION OF THE MULTIGROUP NEUTRON DIFFUSION EIGENVALUE PROBLEM IN SLAB GEOMETRY BY MODIFIED POWER METHOD	672
<i>Rodrigo Zanette, Claudio Zen Petersen, Matheus Guarte Tavares</i>	
SPECTRAL NODAL METHODOLOGY FOR MULTIGROUP SLAB-GEOMETRY DISCRETE ORDINATES NEUTRON TRANSPORT PROBLEMS WITH LINEARLY ANISOTROPIC SCATTERING	680
<i>Amaury Munoz Oliva, Carlos Rafael Garcia Hernandez, Davi Jose Martins E Silva, Hermes Alves Filho</i>	
TRITIUM DISPERSION AROUND THE ANGRA NUCLEAR POWER PLANT: BOUNDARY SIMPLIFICATION BY DIFFEOMORPH CONFORMAL TRANSFORMATIONS	691
<i>Andre Meneghetti, Bardo E. J. Bodmann, Marco T. M. B. Vilhena</i>	

R04 ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY

A COLLABORATIVE VIRTUAL ENVIRONMENT FOR TRAINING OF SECURITY AGENTS IN NUCLEAR EMERGENCIES	701
<i>Sara Isnardo Fernandes, Ana Paula Legey, Andre Cotelli, Antonio Carlos Mol, Claudio De Azevedo Passos, Daniel Mol Machado, Marcio Henrique Da Silva, Paulo Victor Rodrigues De Carvalho, Tiago Lima Rocha</i>	
A MOBILE DOSE PREDICTION SYSTEM BASED ON ARTIFICIAL NEURAL NETWORKS FOR NPP EMERGENCIES WITH RADIOACTIVE MATERIAL RELEASES	714
<i>Kelcio J. Gomes, Claudio M. N. A. Pereira, Jose L. Cunha, Roberto Schirru</i>	
ACCIDENT DIAGNOSIS OF THE ANGRA 2 NUCLEAR POWER PLANT BASED ON INTELLIGENT REAL-TIME ACQUISITION AGENTS AND A LOGICAL TREE MODEL.....	728
<i>Gustavo Varanda Paiva, Roberto Schirru</i>	

VOLUME 2

AN OPTIMIZATION OF A GPU-BASED PARALLEL WIND FIELD MODULE	740
<i>Andre L. S. Pinheiro, Claudio M. N. A. Pereira, Roberto Schirru</i>	
ENHANCEMENT OF RADIATION DOSE ESTIMATION IN NUCLEAR ACCIDENT CASES USING DEEP NEURAL NETWORK AND GPU	748
<i>Filipe Santana Moreira Do Desterro, Adino A. H. Almeida, Claudio M. N. A. Pereira</i>	
GPU-BASED PARALLEL COMPUTATION IN REAL-TIME MODELING OF ATMOSPHERIC TRANSPORT AND DIFFUSION OF RADIOACTIVE MATERIAL.....	758
<i>Marcelo C. Dos Santos, Andre Pinheiro, Claudio M. N. A. Pereira, Roberto Schirru</i>	
MODEL FOR IMPACT ASSESSMENT IN HUMAN FACTORS ENGINEERING PROJECT OF PWR PLANTS WITH DIGITAL CONTROL	768
<i>Frederico G. Roedel, Roberto Schirru</i>	
MONITORING SYSTEM FOR AN EXPERIMENTAL FACILITY USING GMDH METHODOLOGY	776
<i>Iraci Martinez Pereira, Elaine Inacio Bueno</i>	

NEURAL NETWORKS USED TO MONITOR AN EXPERIMENTAL TEST WORKBENCH	786
<i>Davi Almeida Moraes</i>	
OPTIMIZATION OF RELOAD OF NUCLEAR POWER PLANTS USING ACO TOGETHER WITH THE GENES REACTOR PHYSICS CODE	799
<i>Alan M. M. De Lima, Andressa Dos Santos Nicolau, Fernando Simoes Freire, Roberto Schirru</i>	
QUANTUM PARTICLE SWARM APPROACHES APPLIED TO COMBINATORIAL PROBLEMS	811
<i>Andressa Santos Nicolau, Alan M. M De Lima, Roberto Schirru</i>	
THE USE OF VIRTUAL REALITY AS AN INFORMATION TOOL ON EXTERNALITIES OF ENERGY SOURCES.....	823
<i>Maria Isabel Barbosa Silva, Antonio C. A. Mol, Celso M. F. Lapa</i>	
USE OF VIRTUAL REALITY FOR THE DEVELOPMENT OF A NUCLEAR WASTE REPOSITORY FOR TRAINING	828
<i>Ricardo Fernandes De Avellar, Ana Paula Legey, Andre Cotelli E. Santo, Antonio Carlos De A. Mol, Daniel Mol Machado</i>	
VIRTUAL REALITY AS AN AID IN THE DEVELOPMENT OF THE LABGENE PROJECT	838
<i>Andre Ricardo Mendonca Pinheiro, Alef H Ribeiro, Cezar Luis Marcio, Kleber Roberto Severino, Marcelo Knorich Zuffo, Reinaldo Maeda</i>	
VIRTUAL REALITY TECHNIQUES IN THE AID TO POPULATION AWARENESS AROUND A NUCLEAR WASTE	847
<i>Erica Cotelli Aguiar, Ana Paula Legey, Andre Cotelli E. Santo, Antonio Carlos De Abreu Mol, Daniel Mol Machado, Daniel Chelles, Paulo Victor Rodrigues De Carvalho</i>	
<u>R05 NUCLEAR REACTOR FUEL FABRICATION AND DESIGN</u>	
SIMULATING FUEL BEHAVIOR UNDER TRANSIENT CONDITIONS USING FRAPTRAN AND UNCERTAINTY ANALYSIS USING DAKOTA	859
<i>Daniel Souza Gomes, Antonio T. Silva</i>	
ANALYSIS OF PELLET CLADDING MECHANICAL INTERACTION USING COMPUTATIONAL SIMULATION	871
<i>Jose Roberto Berretta, Claudia Giovedi Motta, Danilo Pinheiro Faria, Paulo Afonso Rodi, Ricardo Bueno Suman</i>	
ANALYSIS OF THE BEHAVIOR UNDER IRRADIATION OF HIGH BURNUP NUCLEAR FUELS WITH THE COMPUTER PROGRAMS FRAPCON AND FRAPTRAN	878
<i>Antonio Teixeira E Silva, Regis Reis</i>	
ANALYSIS OF UO ₂ -BEO FUEL UNDER TRANSIENT USING FUEL PERFORMANCE CODE	897
<i>Daniel Souza Gomes, Alfredo Abe, Claudia Giovedi, Rafael O. R. Muniz</i>	
ASSESSMENT OF URANIUM DIOXIDE FUEL PERFORMANCE WITH THE ADDITION OF BERYLLIUM OXIDE	909
<i>Rafael O R Muniz, Alfredo Abe, Amanda A Aguiar, Antonio T Silva, Claudia Giovedi Giovedi, Daniel G Sousa</i>	

EVALUATION OF CAST U-Mo ALLOYS PROCESSED IN GRAPHITE CRUCIBLE COATED WITH BORON NITRIDE	915
<i>Kleiner Marques Marra, Joao Bosco De Paula, Sergio Carneiro Reis, Tercio Assuncao Pedrosa</i>	
EVALUATION OF SPACER GRID SPRING CHARACTERISTICS BY MEANS OF PHYSICAL TESTS AND NUMERICAL SIMULATION.....	927
<i>Carlos F M Schettino</i>	
GROWTH OF GD ₂ O ₃ COHERENT LAYERS ON UO ₂ MICROSPHERE SURFACE VIA SOL-GEL PROCESS	939
<i>Luciana S. Ribeiro, Alisson F. C. Brandao, Ana Maria M. Dos Santos, Armino Santos, Edilaine F. Da Silva, Felipe W. F. Oliveira, Fernando S. Lameiras, Sergio C. Dos Reis, Tercio A. Pedrosa, Yara S. Pereira</i>	
HIGH DENSITY FUELS USING DISPERSION AND MONOLITHIC FUEL	954
<i>Daniel Souza Gomes, Alfredo Y. Abe, Antonio T. Silva, Claudia Giovedi, Rafael O. R. Muniz</i>	
IMPROVING PERFORMANCE WITH ACCIDENT TOLERANT FUELS.....	966
<i>Daniel Souza Gomes, Claudia Giovedi, Rafael O. R. Muniz</i>	
MICROSTRUCTURAL CHARACTERIZATION OF STAINLESS STEEL 17-4 PH, USED IN THE CONTROL ELEMENT OF PWR-TYPE REACTORS SUBMITTED TO DIFFERENT THERMAL TREATMENTS	977
<i>Douglas F. A. Ferreira, Renato P. Rezende, Tiago Turcarelli</i>	
MODIFICATION OF FUEL PERFORMANCE CODE TO EVALUATE IRON-BASED ALLOY BEHAVIOR UNDER LOCA SCENARIO	987
<i>Claudia Giovedi, Alfredo Abe, Antonio Teixeira Silva, Daniel S. Gomes, Marcelo Ramos Martins, Rafael O. R. Muniz</i>	
NEUTRONIC EVALUATION OF ANNULAR FUEL RODS TO ASSEMBLIES 13X13, 14X14 AND 15X15.	997
<i>Clarysson A. M. Da Silva, Antonella L. Costa, Carlos Eduardo Velasquez, Claubia Pereira, Mario C. Ramos, Raphael H. M. Silva</i>	
SIMULATION OF ACCIDENT-TOLERANT U ₃ SI ₂ FUEL USING FRAPCON CODE	1010
<i>Daniel Souza Gomes, Alfredo Y. Abe, Antonio T. Silva, Claudia Giovedi, Rafael O. R. Muniz</i>	
STRUCTURAL ANALYSIS OF FUEL ROD APPLIED TO PRESSURIZED WATER REACTORS.....	1022
<i>Andre Ricardo Mendonca Pinheiro, Andre Alenxandrino Lotto, Danilo Pinheiro Faria</i>	
STUDIES ON CAPACITY MANAGEMENT FOR FACTORIES OF NUCLEAR FUEL FOR RESEARCH REACTORS	1030
<i>Miguel Negro, Delvonei Alves De Andrade, Elita Fontenele Urano De Carvalho, Marco Aurelio De Mesquita, Michelangelo Durazzo, Nikolas LyMBERIS Scuro</i>	
STUDY OF BURNABLE POISON IN THE DUPIC CYCLE	1041
<i>Clarysson A. M. Da Silva, Arthur P. C. Moreira, Claubia Pereira, Michel C. B. De Almeida, Rochkhudson B. De Faria</i>	
STUDY OF PRODUCTION OF FUEL PELLETS FOR A REACTOR	1050
<i>Luiz F. F. Mendes, Thadeu N. Conti</i>	
STUDY OF THE DENSIFICATION OF URANIUM-ERBIUM SYSTEM.....	1059
<i>Artur Cesar Freitas, Elita F. Urano De Carvalho</i>	

STUDY OF THE INFLUENCE OF TEMPERATURE AND TIME ON THE ELECTROPLATING NICKEL LAYER IN INCONEL 718 STRIPS USED IN SPACER GRID OF PRESSURIZED WATER COOLED NUCLEAR REACTORS (PWR).....	1069
<i>Renato Paulo Rezende, Amanda Abati Aguiar, Julio Verne Gropp, Zehbour Panossian</i>	

THERMAL CONDUCTIVITY AND THERMAL DIFFUSIVITY OF UO ₂ -BEO NUCLEAR FUEL PELLETS	1080
<i>Fabio A. Mansur, Ana Maria M. Dos Santos, Denise M. Camarano, Mayra A. Silva, Ricardo A. N. Ferreira, Wilmar B. Ferraz</i>	

R06 ADVANCED NUCLEAR REACTORS

ANALYSIS OF A SMALL FAST SODIUM REACTOR CONCEPT	1090
<i>Claudia Pereira, Antonella Lombardi Costa, Carlos E. Velasquez, Felipe Martins, Maria Auxiliadora Fortini Veloso, Matheus Liberato Vargas, Mauricio Gilberti</i>	

BRAYTON CYCLE NUMERICAL MODELING USING THE RELAP5-3D CODE, VERSION 4.3.4.	1104
<i>Eduardo Pedroso Longhini, Francisco A. Braz Filho, Guilherme B. Ribeiro, Lamartine N. F. Guimaraes, Paulo D. C. Lobo</i>	

CFD ANALYSIS OF THE VHTR PRISMATIC CORE WITH VARIATION OF GEOMETRY PARAMETERS.....	1116
<i>Carlos Alberto Brayner De O Lira, Pedro Paulo Dantas De Souza Paiva</i>	

COMPARATIVE ANALYSIS OF THERMAL BEHAVIOR IN HOLLOW NUCLEAR FUEL PELLETS	1131
<i>Beatriz M. Dos Santos, Antonio C. M. Alvim</i>	

DESIGN OF A RANKINE CYCLE OPERATING WITH A PASSIVE TURBINE MULTI FLUID	1141
<i>Guilherme M. Placco, Gabriela S. B. Santos, Lamartine N. F. Guimaraes</i>	

DEVELOPMENT OF A METHODOLOGY FOR THE EVALUATION OF THE THERMOMECHANICAL BEHAVIOR OF THE TRISO FUEL	1153
<i>Lorena P. Rodriguez Garcia, Carlos A. Brayner De Oliveira Lira, Carlos R. Garcia Hernandez, Daniel E. Milian Lorenzo, Daniel Milian Perez</i>	

FEASIBILITY TO CONVERT AN ADVANCED PWR FROM UO ₂ TO A MIXED (U,TH)O ₂ CORE	1170
<i>Giovanni Laranjo Stefani, Joao M L Moreira, Jose R Maiorino, Pedro C R Rossi, Thiago A Santos</i>	

GENERATION OF CROSS SECTION DATA OF HEAT PIPE WORKING FLUIDS FOR COMPACT NUCLEAR REACTORS	1187
<i>Anderson Slewinski, Alexandre D. Caldeira, Guilherme B. Ribeiro</i>	

HYDROGEN PRODUCTION METHODS EFFICIENCY COUPLED TO AN ADVANCED HIGH TEMPERATURE ACELERATOR DRIVEN SYSTEM	1197
<i>Daniel Gonzalez Rodriguez, Carlos Alberto Brayner De Oliveira Lira, Carlos Garcia Hernandez</i>	

MEASUREMENT OF REACTIVITY IN ADS REACTORS CONSIDERING AN EXPONENTIAL DECAY AFTER AN INTERRUPTION IN THE EXTERNAL PROTON SOURCE	1218
<i>Edson Henrice Junior, Alessandro Da Cruz Goncalves, Daniel Arthur Pinheiro Palma</i>	

NEUTRONIC AND THERMAL-HYDRAULIC STUDIES OF AQUEOUS HOMOGENEOUS REACTOR FOR MEDICAL ISOTOPES PRODUCTION	1230
<i>Daniel Milian Perez, Carlos A. Brayner De Oliveira Lira, Daniel E. Milian Lorenzo, Lorena P. Rodriguez Garcia</i>	
OPTIMAL TEMPERATURE OF OPERATION OF THE COLD SIDE OF A CLOSED BRAYTON CYCLE FOR SPACE NUCLEAR PROPULSION	1252
<i>Luis F. R. Romano, Guilherme B. Ribeiro</i>	
PROSPECTIVE THORIUM FUELS FOR FUTURE NUCLEAR ENERGY GENERATION	1266
<i>Paulo E. De O. Lainetti</i>	
REPROCESSING TECHNIQUES OF LWR SPENT FUEL FOR REUTILIZATION IN HYBRID SYSTEMS AND IV GENERATION REACTORS.....	1275
<i>Claudia Pereira, Antonella L. Costa, Carlos E. Velasquez, Graiciany P. Barros, Maria Auxiliadora F. Veloso, Wilmer Aruquipa</i>	
SAFETY ANALYSIS FOR REACTIVITY INSERTION ON ADS.....	1287
<i>Claudia Pereira, Antonella L. Costa, Carlos E. Velasquez, Graiciany P. Barros, Marcia S. Saturnino, Maria Auxiliadora F. Veloso</i>	
SCALE ANALYSIS OF DECAY HEAT REMOVAL SYSTEM BETWEEN HTR-10 AND HTR-PM REACTORS UNDER ACCIDENTAL CONDITIONS	1300
<i>Thiago D. Roberto, Antonio C. M. Alvim, Celso M. F. Lapa</i>	
STUDY OF THE ECONOMIC VIABILITY OF THE INNOVATIVE NUCLEAR REACTOR SMART IN BRAZIL.....	1315
<i>Cordelia M. F. Escanhoela, Ana C. S. Lima, Gaiane Sabundjian</i>	
TERRA: A NUCLEAR REACTOR TO HELP EXPLORE SPACE, DEEP OCEAN AND DIFFICULT ACCESS LOCATIONS	1325
<i>Lamartine N. F. Guimaraes, Artur Flavio Dias, Elvis Falcao De Araujo, Francisco Antonio Braz Filho, Guilherme Moreira Placco, Guilherme Borges Ribeiro, Jamil Alves Do Nascimento, Valeria S. F. O. Leite</i>	
VALIDATION OF A METHODOLOGY TO DEVELOP A TEST FACILITY IN REDUCED SCALE RELATED TO BORON DISPERSION IN A PRESSURIZER OF AN IPWR	1339
<i>Carlos Alberto Brayner De O Lira, Celso Marcelo Franklin Lapa, Fernando Roberto Andrade Lima, Jair De Lima Bezerra, Mario Augusto Bezerra Silva, Samira Ruana Vidal Do Nascimento</i>	

R07 STRUCTURAL MECHANICS

ASSESSMENT OF FRACTURE TOUGHNESS OF STRUCTURAL STEELS.....	1348
<i>Jefferson Jose Vilela, Emil Reis, Jose Onesimo Gomes Junyor, Nirlando Antonio Rocha, Stefano Bruno Faria</i>	
EDDY CURRENT EXAMINATION OF THE NUCLEAR FUEL ELEMENTS WITH ALUMINUM 1100-F CLADDING OF IPR-R1 RESEARCH REACTOR – AN INITIAL STUDY	1361
<i>Roger F. Silva, Juliano S. Rodrigues, Rangel T. Frade, Silverio F. Silva Junior</i>	
EFFECTS OF POST WELD HEAT TREATMENT AND WELD OVERLAY ON THE RESIDUAL STRESS AND MECHANICAL PROPERTIES IN DISSIMILAR METAL WELD.....	1368
<i>Wagner R. C. Campos, Alisson H. F. Vilela, Camila R. O. Almeida, Emerson G. Rabello, Vladimir S. Ribeiro</i>	

EXPERIMENTAL INVESTIGATION OF CRITICAL VELOCITY IN A PARALLEL PLATE RESEARCH REACTOR FUEL ASSEMBLY.....	1381
<i>Alfredo J. A. Castro, Delvonei A. Andrade, Nikolas L. Scuro</i>	
INFLUENCE OF SEVERE PLASTIC DEFORMATION OBTAINED BY WARM ROLLING ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF THE FERRITIC STAINLESS STEEL.....	1389
<i>Jefferson Jose Vilela, Dagoberto Brandao Santos, Eric Marchezini Mazzer, Esteveesson Ferreira Miqueletti, Luana Alves Barbosa, Wagner Reis Costa Campos</i>	
RECENT ADVANCES ON CHARPY SPECIMEN RECONSTITUTION TECHNIQUES	1397
<i>Arnaldo H. P. Andrade, Carlos A. J. Miranda, Raquel M Lobo</i>	
RESISTANCE OF INCOLOY 800 STEAM GENERATOR TUBE TO PITTING CORROSION IN PWR SECONDARY WATER AT 250°C.....	1403
<i>Monica M. A. M. Schvartzman, Adriana S. Albuquerque, Emerson G. Rabello, Fabio A. Mansur, Luiza Esteves</i>	
STRUCTURAL EVALUATION OF IEA-R1 PRIMARY SYSTEM PUMP NOZZLES	1410
<i>Altair Antonio Faloppa, Carlos Alberto Oliveira, Gerson Fainer, Miguel Mattar Neto</i>	

R08 REACTOR SAFETY ANALYSIS

ACCURATE REACTIVITY VOID COEFFICIENT CALCULATION FOR THE FAST SPECTRUM REACTOR FBR-IME	1424
<i>Fabiano Petruceli Coelho Lima, Marta Jann Velozo, Sergio Oliveira Vellozo</i>	
CONTAINMENT PRESSURE ANALYSIS METHODOLOGY DURING A LBLOCA WITH ITERATION BETWEEN RELAP5 AND COCOSYS.	1435
<i>Dayane Faria Silva, Ana Cecilia Souza Lima, Gaiane Sabundjian</i>	
DETERMINATION OF MAXIMUM WATER TEMPERATURE WITHIN THE SPENT FUEL POOL OF ANGRA NUCLEAR POWER PLANT – UNIT 3	1445
<i>Paulo Fernando F Frutuoso E Melo, Antonio Sergio M Alves, Fernanda L Werner</i>	
HUMAN RELIABILITY IN NON-DESTRUCTIVE INSPECTIONS OF NUCLEAR POWER PLANT COMPONENTS: MODELING AND ANALYSIS.....	1460
<i>Vanderley Vasconcelos, Amanda L. Raso, Raissa O. Marques, Silverio Ferreira Da Junior, Wellington A. Soares</i>	
IDENTIFICATION OF FLOW REGIMES AND HEAT TRANSFER MODES IN ANGRA2 CORE DURING THE SIMULATION OF THE SMALL BREAK LOSS OF COOLANT ACCIDENT OF 250 CM ² IN THE COLD LEG OF PRIMARY LOOP USING RELAP5 CODE.....	1472
<i>Eduardo M. Borges, Gaiane Sabundjian</i>	
PCRELAP5: A VISUAL GRAPHIC PREPROCESSOR FOR RELAP5	1482
<i>Daniel Fernando Monaco, Gaiane Sabundjian</i>	

VOLUME 3

PROBABILISTIC SAFETY ANALYSIS AND RISK-BASED INSPECTION OF NUCLEAR RESEARCH REACTORS: STATE-OF-THE-ART AND IMPLEMENTATION PROPOSAL.....	1494
<i>Raissa O. Marques, Amanda L. Raso, Amir Z. Mesquita, Silverio F. Silva Junior, Vanderley De Vasconcelos, Wellington A. Soares</i>	

RELIABILITY STUDY OF THE AUXILIARY FEED-WATER SYSTEM OF A PRESSURIZED WATER REACTOR BY FAULTS TREE AND BAYESIAN NETWORK	1506
<i>Deise D. Lava, Antonio C. F. Guimaraes, Diogo S. Borges, Maria L. Moreira</i>	
SENSITIVITY AND UNCERTAINTY EVALUATION APPLIED TO THE FAILURE PROCESS OF NUCLEAR FUEL	1521
<i>Daniel Souza Gomes</i>	
SENSITIVITY ASSESSMENT OF FUEL PERFORMANCE CODES FOR LOCA ACCIDENT SCENARIO	1532
<i>Alfredo Abe, Antonio Teixeira, Claudia Giovedi, Daniel Gomes, Rafael Oliveira Rondon Muniz</i>	
SIMULATION OF A SEVERE ACCIDENT AT A TYPICAL PWR DUE TO BREAK OF A HOT LEG ECCS LINE USING MELCOR CODE.....	1548
<i>Seung Min Lee, Gaiane Sabundjian</i>	
THE IMPORTANCE OF PROBABILISTIC SAFETY ASSESSMENT IN THE CAREFUL STUDY OF RISKS INVOLVED TO NEW NUCLEAR POWER PLANT PROJECTS	1555
<i>Jonatas F. C. Mata, Amir Z. Mesquita</i>	
USE OF RELIABILITY ENGINEERING TOOLS IN SAFETY AND RISK ASSESSMENT OF NUCLEAR FACILITIES	1567
<i>Amanda L. Raso, Amir Z. Mesquita, Raissa O. Marques, Vanderley De Vasconcelos, Wellington A. Soares</i>	

R09 COMPUTATIONAL FLUID DYNAMICS

ARTIFICIAL DISSIPATION MODELS APPLIED TO EULER EQUATIONS FOR ANALYSIS OF SUPERSONIC FLOW OF HELIUM GAS AROUND A GEOMETRIC CONFIGURATIONS RAMP AND DIFFUSOR TYPE	1580
<i>Jussie S. Rocha, Carlos A. B. O. Lira, Edisson S. G. Maciel, Pedro A. S. Sousa, Raimundo N. C. Neto</i>	
ASSESSMENT OF INTERFACIAL HEAT TRANSFER MODELS UNDER SUBCOOLED FLOW BOILING	1590
<i>Guilherme Borges Ribeiro, Francisco Antonio Braz Filho</i>	
CFD ANALYSIS OF BLOCKAGE LENGTH ON A PARTIALLY BLOCKED FUEL ROD	1605
<i>Nikolas L. Scuro, Delvonei Alves De Andrade, Edvaldo Angelo, Gabriel Angelo</i>	
COUPLED NEUTRONIC-THERMAL-HYDRAULICS ANALYSIS IN A COOLANT SUBCHANNEL OF A PWR USING CFD TECHNIQUES.....	1619
<i>Felipe Porto Ribeiro, Jian Su</i>	
EVALUATION OF THE HEAT TRANSFER IN A GEOLOGICAL REPOSITORY CONCEPT CONTAINING PWR, VHTR AND HYBRID ADS-FISSION SPENT FUELS	1634
<i>Claudia Pereira, Angela Fortini, Carlos E. Velasquez, Fabiano Cardoso, Fernando Pereira, Jean A. D. Salome, Raoni A. S. Jonusan</i>	
HEAT TRANSFER IN A SPENT FUEL POOL CONCEPT CONTAINING PWR, HYBRID ADS-FISSION, AND VHTR SPENT FUELS	1644
<i>Claudia Pereira, Carlos E. Velasquez, Fabiano Cardoso, Fernando Pereira, Jean A. D. Salome</i>	

REGENERATOR OPTIMIZATION OF A CLOSED BRAYTON CYCLE VIA ENTROPY GENERATION MINIMIZATION	1654
<i>Elvis F A Araujo, Guilherme B Ribeiro, Lamartine N F Guimaraes</i>	
SIMPLIFIED CFD MODEL OF COOLANT CHANNELS TYPICAL OF A PLATE-TYPE FUEL ELEMENT: AN EXHAUSTIVE VERIFICATION OF THE SIMULATIONS	1668
<i>Javier Gonzalez Mantecon, Miguel Mattar Neto</i>	
SIMULATION IN CFD OF A PEBBLE BED - ADVANCED HIGH TEMPERATURE REACTOR CORE USING OPENFOAM.....	1681
<i>Pamela M. Dahl, Jian Su</i>	
STUDIES OF SIMULATIONS OF TWO-PHASE WATER-AIR FLOWS USING ANSYS CFX.....	1695
<i>Anizio M. Garrido Filho, Jose L. H. Faccini, Maria L. Moreira</i>	

R10 MAN MACHINE INTERFACE

A REVIEW OF THE EVOLUTION OF HUMAN RELIABILITY ANALYSIS METHODS AT NUCLEAR INDUSTRY	1705
<i>Lecio N. Oliveira, Isaac J. A. L. Santos, Paulo V. R. Carvalho</i>	
DESIGN OF A DIGITAL SYSTEM FOR OPERATIONAL PARAMETERS SIMULATION OF IPR-R1 TRIGA NUCLEAR RESEARCH REACTOR.....	1717
<i>Aldo M. F. Lage, Adriano A. M. Felipe, Amir Z. Mesquita</i>	
DEVELOPMENT OF A NEW GRAPHICAL INTERFACE FOR THE LABIHS SIMULATOR USING LABVIEW	1727
<i>Silas C. Augusto, Guilherme D. G. Jaime, Marcos S. Farias</i>	
HUMAN FACTORS ENGINEERING APPLIED TO CONTROL CENTRE DESIGN OF A RESEARCH NUCLEAR REACTOR.....	1742
<i>Larissa Pereira Farias, Beany G Monteiro, Isaac J. A. Luquetti Dos Santos, Paulo Victor R. Carvalho</i>	
USE OF EYE TRACKING EQUIPMENT FOR HUMAN RELIABILITY ANALYSIS APPLIED TO COMPLEX SYSTEM OPERATIONS	1750
<i>Andre Ricardo Mendonca Pinheiro, Eugenio Anselmo Pessoa Do Prado, Marcelo Ramos Martins</i>	

R11 NUCLEAR REACTOR LICENSING AND REGULATION

APPLYING HUMAN FACTORS ENGINEERING PROGRAM TO THE MODERNIZATION PROJECT OF NPP CONTROL ROOM IN ACCORDANCE WITH U.S.NRC AND KTA REGULATIONS.....	1760
<i>Renato Koga Avellar, Roberto Schirru</i>	
BEPU-FSAR: ESTABLISHING A BACKGROUND FOR EXTENSION OF NUCLEAR THERMAL HYDRAULIC PRINCIPLES TO NON THERMAL-HYDRAULIC CODES	1776
<i>Francine Menzel, Francesco D'Auria, Gaiane Sabundjian</i>	
INCREASING THE EFFECTIVENESS OF THE PHYSICAL PROTECTION SYSTEM ON A NUCLEAR FACILITY	1786
<i>Antonio Carlos Alves Vaz, Thadeu Das Neves Conti</i>	

R12 NUCLEAR REACTOR INSTRUMENTATION AND CONTROL

DEVELOPMENT OF A RESEARCH REACTOR POWER MEASUREMENT SYSTEM USING
CHERENKOV RADIATION 1796
Bricio M. Salles, Amir Z. Mesquita

HARDWARE RESILIENCE: A WAY TO ACHIEVE RELIABILITY AND SAFETY IN NEW
NUCLEAR REACTORS I&C SYSTEMS 1803
Marcos S. Farias, Nadia Nedjah, Paulo Victor R. Carvalho

NEW SIGNAL ACQUISITION AND PROCESSING SYSTEM FOR THE EXECUTION OF
INITIAL CRITICALITY AFTER REFUELING AND PHYSICAL TESTS AT LOW POWER IN
ANGRA 2, WITH THE INCORPORATION OF THE REAL TIME RESOLUTION OF THE
INVERSE POINT KINETIC EQUATION – IPK..... 1812
Decio Brandes Ferreira Junior, Cristiano Da Silva, Monica Georgia Oliveira

TIME RESPONSE MEASUREMENTS OF ROSEMOUNT PRESSURE TRANSMITTERS
(MODEL 3154) OF ANGRA I POWER PLANT 1825
Roberto Carlos Santos, Iraci M. Pereira, Marcelo C. Justino, Marcos C Silva

R13 NUCLEAR POWER PLANT VIABILITY, DESIGN, CONSTRUCTION AND OPERATION

ENERGY AND EXERGY ANALYSES OF ANGRA 2 NUCLEAR POWER PLANT 1833
Antonella L Costa, Angela Fortini, Claubia Pereira, Joao G. O. Marques

R14 ENVIRONMENTAL IMPACT APPLIED TO NUCLEAR REACTORS AND FUEL CYCLE

METHODOLOGY TO ESTIMATING AQUATIC DISPERSION OF EFLUENTS FROM
ACIDENTAL AND ROUTINE RELEASES 1848
Diogo S. Borges, Antonio C. F. Guimaraes, Deise D. Lava, Maria L. Moreira

OPERATIONAL INTERVENTION LEVELS FOR REACTOR EMERGENCIES IAEA
RECOMMENDATIONS 1858
Lais A. Aguiar, Arlene Alves Reis, Raul Dos Santos

QUANTIFICATION OF EFFLUENTS IN THE PRODUCTION OF NUCLEAR FUEL..... 1869
Mayara Costa De Castro, Elita Fontenele Urano De Carvalho, Humberto Gracher Riella

XIII ENAN

E01 RADIATION PROTECTION

A STUDY USING VIRTUAL REALITY AS A SOURCE OF COMPLEMENTARY
INFORMATION FOR NUCLEAR MEDICINE PATIENTS AND ITS RELATIVES 1875
*Sergio Fernandes Mendonca, Ana Cristina H Nascimento, Antonio Carlos A Mol, Eugenio R
Marins, Julio C Suita*

ANALYSIS OF CHROMOSOMAL ABNORMALITIES: A STUDY OF PARTIAL EXPOSURE
TO X-RAYS..... 1881
*Aida M. G, De Andrade, Fabiana F. De Lima, Julyanne C. G. De Mendonca, Lais Melo,
Mariana E. Mendes, Neide Santos, Suy Hwang*

ASSESSMENT OF ²²⁶ RA, ²²⁸ RA AND ²¹⁰ PB CONCENTRATION IN MINERAL WATERS FROM LAMBARI AND CONTENDAS WATER PARKS – MG AND EVALUATION OF THE COMMITTED EFFECTIVE DOSES	1887
<i>Denise Sanny Mancano Wakasugi, Sandra Regina Damatto</i>	
COMPARATIVE STUDY OF DOSE-RESPONSE CURVE FOR CHROMOSOME ABERRATIONS INDUCED IN HUMAN LYMPHOCYTES BY ⁶⁰ CO AND X-RAYS.....	1898
<i>Mariana E Mendes, Aida M. G Andrade, Ana M. M. A. Melo, Fabiana F. Lima, Julyanne C. G. Mendonca, Lais M. Silva, Neide Santos, Suy Hwang</i>	
COMPOSITES WITH CARBON NANOTUBE FOR RADIATION SHIELDING APPLICATION	1904
<i>Crissia Fontainha, Adelina P. Santos, Clascidia Aparecida Furtado, Luiz Oliveira De Faria, Modesto Nunes De Vasconcelos Vasconcelos</i>	
COMPUTED TOMOGRAPHY SCAN OPTIMIZATION USING HEAD PHANTOM AND RADIOCHROMIC FILMS	1913
<i>Lorena Cunha Fernandes, Arnaldo P. Mourao, Carlos E. Velasquez, Priscila C. Santana</i>	
DETERMINATION OF THE ²²⁶ RA, ²²⁸ RA AND ²¹⁰ PB CONCENTRATIONS IN THE MINERAL WATER SPRINGS FROM WATER PARKS OF CAMBUQUIRA AND MARIMBEIRO, MINAS GERAIS AND ASSESSMENT OF THE COMMITTED EFFECTIVE DOSES.	1922
<i>Laissa Adriana Bonifacio Dos Santos, Sandra Regina Damatto</i>	
DOSE RATE IN A DEACTIVATED URANIUM MINE.....	1934
<i>Wagner De Souza Pereira, Ademir Xavier Da Silva, Alessander Sa Do Carmo, Alphonse G. C. A. Kelecom, Ayandra De Oliveira Dias, Jose Marques Lopes</i>	
EVALUATION OF CS-134 AND CS-137 IN SUGAR BY NON-DESTRUCTIVE ANALYSIS	1941
<i>Filipe Lopes De Barros Correia, Jose W. Vieira, Jose A. S. Junior, Josineide M. N. Santos, Nilson V. S. Medeiros, Otavio P. S. Junior, Rhaiana C. Valois, Romilton S. Amaral</i>	
EVALUATION OF PVDF/MWCNT – ZRO ₂ NANOCOMPOSITES FOR X-RAYS ATTENUATION	1950
<i>Esther L. M. Pereira, Adelina P. Santos, Adriana S. M. Batista, Arno H. Oliveira, Fabiola A. S. Ribeiro, Luiz O. Faria</i>	
EVALUATION OF THE ANGULAR RESPONSE OF LABR ₃ (CE) AND NAI(TL) RADIOLOGICAL IDENTIFIERS FOR EMERGENCY SITUATIONS ATTENDANCE	1956
<i>Ana Carolina Izidorio, Aneuri S. De Amorim, Avelino Dos Santos, Domingos D'Oliveira, Cardoso, Luciano S. R. Oliveira, Mario Cesar V. Balthar, Mayara N. Arbach, Walter J. Guimaraes Junior</i>	
EVALUATION OF THE INTEGRITY OF RADIOLOGICAL PROTECTION CLOTHING USED IN VETERINARY RADIOLOGY.....	1966
<i>Paola Da Costa Rosa, Douglas Siqueira Da Costa, Frieda Saicla Barros</i>	
GROSS ALPHA AND BETA ACTIVITIES IN DRINKING WATER FROM GOIÁS STATE, BRAZIL	1971
<i>Raquel M Mingote, Heliana F Costa, Regina A Nogueira</i>	
INTERPOLATION METHODS FOR CREATING A SCATTER RADIATION EXPOSURE MAP	1979
<i>Elicardo A. De S. Goncalves, Celio S. Gomes, Davi F. Oliveira, Luis F De Oliveira, Marcelino J Dos Anjos, Ricardo T. Lopes</i>	
INVESTIGATION OF MULTILAYERED NANOCOMPOSITES AS LOW ENERGY X-RAYS ATTENUATORS.....	1987
<i>Liliane Silva, Adriana Batista, Clascidia Furtado, Jefferson Nascimento</i>	

NATURAL RADIOACTIVITY AND ESTIMATED DOSE IN BRAZILIAN TOBACCO PRODUCTS	1995
<i>Aline S. G. R. Oliveira</i>	
NATURAL RADIONUCLIDES, ²²⁶ RA, ²²⁸ RA AND ²¹⁰ PB, DETERMINED IN MINERAL WATER SPRINGS FROM PARQUE DAS ÁGUAS DE CAXAMBU, AND ASSESSMENT OF THE COMMITTED EFFECTIVE DOSES	2006
<i>Sandra R Damatto, Amanda P Carmo, Arthur A Meneghini, Joselene Oliveira</i>	
OVERVIEW OF ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM – INSTITUTE OF RADIATION PROTECTION AND DOSIMETRY - IRD.....	2019
<i>Sarah B. O. C. Gomes, Sueli Silva Peres</i>	
PHOTON DOSE EVALUATION AT THE ENTRANCE OF RADIOTHERAPY BUNKERS WITHOUT MAZE	2026
<i>Alessandro Facure, Camila Salata</i>	
PRELIMINARY ANALYSIS OF ACCIDENTS OF THE SANTA QUITÉRIA PROJECT: GAUSSIAN METHODOLOGY FOR ATMOSPHERIC DISPERSION	2030
<i>Gullit D. C. Anjos</i>	
PROPOSAL FOR A RADIATION SHIELDING STUDY AIMING THE IMPLANTATION OF NEUTRONS BEAM SHUTTER IN THE J-9 RADIATION CHANNEL OF THE ARGONAUTA REACTOR OF THE NUCLEAR ENGINEERING INSTITUTE.....	2040
<i>Larissa Rocha Pitta Xavier, Dante Luis Voi, Domingos D'Oliveira Cardoso, Francisco Jose De Oliveira Ferreira</i>	
RADIATION SHIELDING ACTIVITIES AT IDOM.....	2052
<i>Cesar Hueso, Imanol Zamora, Unai Cano, Yelko Chento</i>	
RADIOACTIVE BACKGROUND OF GRANITO MADEIRA, NORTH AMAZONAS, BRAZIL.....	2067
<i>Vanderlei V Moura, Agnaldo K. F. Martins, Cláudia Pereira</i>	
RADIOLOGICAL AND CHEMICAL CHARACTERIZATION OF DRINKING WATER SUPPLIES OF SERIDÓ ORIENTAL REGION, RIO GRANDE DO NORTE, BRAZIL.	2078
<i>Lino Angel Valcarcel Rojas, Alfredo M. Alvarez, Clístenes W. A. Do Nascimento, Jose A. C. Alvarado, Jose A. Dos Santos Junior, Josineide M. N. Santos, Marvic O. Milan, Romilton S. Amaral, Zahily H. Fernandez</i>	
RISK ANALYSIS APPLIED TO THE PRODUCTION OF GENERATORS OF MOLYBDENUM-99/TECHNETIUM-99M.....	2088
<i>Daniel Rodriguez Lopez, Antonio Torres Valle, Fernando E. Ayra Pardo, Jorge R. Henriquez Guerrero, Miguel A. Soria Guevara</i>	
SOLID CANCER DEVELOPMENT RISK ASSESSMENT AND COMMUNICATION IN RDD SCENARIOS USING COMPUTATIONAL SIMULATION.....	2097
<i>Valquíria Miranda Bulhosa, Edson Ramos De Andrade, Zelmo Rodrigues De Lima</i>	
STUDY OF THE SPECIFIC CONCENTRATIONS OF ⁴⁰ K AND OTHER RADIONUCLIDES IN THE MOST CONSUMED TEAS IN BRAZIL	2103
<i>Roberto Cruz Da Silva, Ademir X Silva, Jose M Lopes, Ricardo W Garcez</i>	
STUDY OF THE SPECIFIC CONCENTRATIONS OF ⁴⁰ K, ²²⁶ RA, ²²⁸ RA AND ²²⁴ RA IN SOME SEASONINGS MARKETED IN RIO DE JANEIRO CITY	2112
<i>Ricardo W. D. Garcez, Ademir Xavier Da Silva, Jose Marques Lopes, Leandro Barbosa Silva, Marco Antonio Frota Lima</i>	

THE FORMATION OF HUMAN RESOURCES IN RADIATION PROTECTION: THE LATO SENSU SPECIALIZATION PROGRAM OF THE IRD/IAEA	2121
<i>Fernando Barcellos Razuck, Aucyone Augusto Da Silva</i>	
THE USE OF VIRTUAL REALITY FOR TRAINING PROFESSIONALS OF NUCLEAR MEDICINE	2129
<i>Juliane S Carvalho, Ana Cristina H Nascimento, Antonio Carlos A Mol, Eugenio R Marins, Julio C Suita, Marcio H Silva</i>	
THE WHOLE BODY COUNTING EXPERIENCE ON THE INTERNAL CONTAMINATION OF RADIONUCLIDES AT IPEN/CNEN-SP	2135
<i>Joaquim Carlos S Cardoso, Marcos Xavier</i>	
VERIFICATION OF THE POSITIONING OF RADIOTHERAPY PATIENTS WITH TWO WEBCAMS.....	2140
<i>Yolma Banguero, Diego Bertini, Gustavo Piriz, Manuela Lucas, Marcel Frederico, Raquel Doldan</i>	
<u>E02 DOSIMETRY</u>	
FEASIBILITY STUDIES OF USING THIN ENTRANCE WINDOW PHOTODIODES FOR CLINICAL ELECTRON BEAM DOSIMETRY	2150
<i>Vinicius Saito Monteiro De Barros, Carmen C. Bueno, Cristina R Nascimento, Helen J. Khoury, Josemary A. C. Goncalves, Lucas F. R. Andrade, Viviane K Asfora</i>	
ANALYSIS OF THYROID ABSORBED DOSE IN CERVICAL CT SCAN WITH THE USE OF BISMUTH SHIELDING.....	2157
<i>Fernanda Stephanie Santos, Alvaro M. L. Gomez, Arnaldo P. Mourao, Priscila C. Santana</i>	
APPLICATION OF CORRECTION FACTOR FOR RADIATION QUALITY (K_Q) IN DOSIMETRY WITH PENCIL TYPE IONIZATION CHAMBERS USING A TANDEM SYSTEM.....	2163
<i>Ladyjane Pereira Fontes, Maria P. A. Potiens</i>	
CHARACTERIZATION OF THE MATERIALS USED IN THE CONSTRUCTION OF A PHYSICAL PHANTOM FOR CALIBRATION OF ^{18}F -FDG INTERNAL DOSIMETRY SYSTEM.....	2170
<i>Katia Duarte Vital, Bruno M. Mendes, Telma C. F. Fonseca, Teogenes A. Da Silva</i>	
COMPARISON OF THE RADIOCHOMIC EBT2 RESPONSES FOR 4MV LINACS IN CALIBRATION PROCESSES	2178
<i>Thais M. Mendes, Andre Lima Castro, Luciana Batista Nogueira, Sabrina Donato Silva, Tarcisio Passos Ribeiro Campos</i>	
DETERMINATION OF THE KINETIC PARAMETERS OF BEO THERMOLUMINESCENT SAMPLES USING DIFFERENT METHODS	2185
<i>Fabio Junqueira Algarve, Linda V. E. Caldas</i>	
DEVELOPMENT OF NEWBORN CHEST PHANTOM FOR DOSIMETRIC STUDY IN COMPUTERIZED TOMOGRAPHY	2197
<i>Wadia Namen Aburjaile, Arnaldo Prata Mourao, Luana T. A. Lima</i>	
DIAGNOSTIC X-RAY DOSIMETERS USING STANDARD FLOAT ZONE (FZ) AND XRA-50 COMMERCIAL DIODES	2204
<i>Josemary A C Goncalves, Carmen C. Bueno, Helen J. Khoury, Vinicius S. M. Barros, Viviane K. Asfora</i>	

DOSE PROFILE STUDY IN HEAD CT SCANS USING A MALE ANTHROPOMORPHIC PHANTOM.	2212
<i>Alvaro Mauricio Ladino Gomez, Arnaldo Prata Mourao, Priscila Do Carmo Santana</i>	
DOSIMETRIA IN PHANTOM OF NEWBORN HEAD FOR COMPUTERIZED TOMOGRAPHY SIGNS WITH VOLTAGES OF 80, 100 AND 120 KV	2219
<i>Giovanni A. P. Oliveira</i>	
DOSIMETRY OF CHEST X-RAY EXAMINATIONS IN EMERGENCY CARE UNITS OF BELO HORIZONTE	2226
<i>Renato H. Kawamoto, Marco A. S. Lacerda, Paulo M. C. Oliveira</i>	
EVALUATION OF GAMMA RADIATION CUMULATIVE EXPOSURE MONITORING SYSTEM IN THE NUCLEAR TECHNOLOGY DEVELOPMENT CENTER (CDTN) WITH THERMOLUMINESCENT DOSIMETERS.	2236
<i>Danieli S. Domingues, Alberto A. Barreto, Eugenio M. Oliveira, Gessilane M. Siqueira, Luiz Claudio M. Belo, Robson L. Silva</i>	

VOLUME 4

EVALUATION OF THE INFLUENCE OF THE TH-GEM DETECTOR COMPONENTS IN DOSIMETRIC MEASUREMENTS OF STANDARD MAMMOGRAPHY BEAMS	2245
<i>Natalia F. Silva, Felipe B. Cintra, Hugo Natal Da Luz, Linda V. E. Caldas, Maysa C. Castro, Tiago F. Silva</i>	
EXPERIMENTAL IMRT BREAST DOSIMETRY IN A THORAX PHANTOM	2251
<i>Elsa Bifano Pimenta, Andre C. S Lima , Luciana B Nogueira, Tarcisio P. R Campos</i>	
FLÚOR-18 HEART DOSIMETRY IN MYOCARDIAL PERFUSION IMAGING	2261
<i>Janine Muniz Toledo, Bruno M Trindade, Tarcisio P. R Campos</i>	
FRICKE DOSIMETRY AS A TOOL TO QUALITY CONTROL OF PHOTODYNAMIC THERAPY	2267
<i>Suzana O. Santos, Vivianne L. B. Souza</i>	
GENERATION OF CR MAMMOGRAPHIC IMAGE FOR EVALUATION QUALITY PARAMETERS.....	2275
<i>Mabel Bustos Flores, Arnaldo Prata Mourao</i>	
INVESTIGATION OF NATURAL RADIOACTIVITY LEVELS USING GAMMA DOSIMETRY OUTDOORS	2286
<i>Josineide Marques Dos Santos, Ana Maria M. A. Melo, Arykerne N. C. Silva, Jose Araujo Dos Santos Junior, Lino A. V. Rojas, Otavio P. Santos Junior, Romilton S. Amaral, Zahily H Fernandez</i>	
INVESTIGATION OF PBAT DOSIMETRIC PROPERTIES FOR HIGH GAMMA DOSE DOSIMETRY.....	2295
<i>Elisete Cunha, Cristiana Oliveira, Luiz Faria, Thiago Schimitberger</i>	
MCNPX DOSIMETRY AND RADIATION-INDUCED CANCER RISK ESTIMATION FROM ¹⁸ F-FDG PEDIATRIC USE.....	2304
<i>Bruno M. Mendes, Tarcisio P. R. Campos, Telma C. F. Fonseca</i>	

NATURAL RADIOACTIVITY IN ROCKS FROM PARAIBA SERTAO, BRAZIL.....	2317
<i>Kennedy Francys R Damascena, Alberto A. Silva, Jairo D. Bezerra, Jose A. Santos Junior, Josineide M. N. Santos, Lino V. Rojas, Nilson V. S. Medeiros, Otavio P. Santos Junior, Romilton S. Amaral</i>	
PATIENT DOSE REDUCTION BY CHANGING THE AMOUNT OF 18F-FDG RADIOPHARMACEUTICAL INJECTED	2325
<i>Fernanda Guerra Paiva, Arnaldo P. Mourao Filho, Priscila C. Santana</i>	
PERFORMANCE OF AN EXTRAPOLATION CHAMBER IN COMPUTED TOMOGRAPHY STANDARD BEAMS.....	2331
<i>Maysa C Castro, Linda V. E. Caldas, Natalia F Silva</i>	
PHOTON ENERGY-FLUENCE CORRECTION FACTOR IN LOW-ENERGY BRACHYTHERAPY	2336
<i>Paula Cristina Guimaraes Antunes, Facundo Ballester, Helio Yoriyaz, Javier Vijande, Vicent Guimenez Alventosa</i>	
REACTOR IPEN/MB-01 DOSIMETRY USING TLDS.....	2349
<i>Tassio Antonio Cavalieri, Helio Yoriyaz, Paulo De Tarso Dalledone Siqueira</i>	
STUDY OF A 3D DOSIMETRY SYSTEM RESPONSE - ARCCHECK®	2361
<i>Amanda C. Mazer, Helio Yoriyaz, Marcos V. N. Nakandakari</i>	
USE OF MONTE CARLO METHODS IN THE MODELING OF THE DOSE/INAK DISTRIBUTION OF NATURAL RADIOACTIVE SOURCES - FIRST STUDIES.....	2369
<i>Luis R. A. Bezerra, Alberto A. Silva, Arykerne N. C. Silva, Jose A. Santos Junior, Jose W. Vieira, Josineide M. N. Santos, Kennedy F. Damascena, Nilson V. S. Medeiros, Otavio P. Santos Junior, Romilton S. Amaral</i>	
VALIDATION OF DOSE-RESPONSE CALIBRATION CURVE FOR X RAY FIELD OF CRCN-NE/CNEN: PRELIMINARY RESULTS	2381
<i>Fabiana F Lima, Aida M G Andrade, Ana Maria M A Melo, Julyanne C G Mendonca, Lais M Silva, Mariana E. Mendes, Suy F Hwang</i>	
VERIFICATION OF ANGULAR DEPENDENCE IN MOSFET DETECTOR.....	2388
<i>Clayton H. Souza, Helio Yoriyaz, Iremar A. Silva Jr, Julian M. B. Shorto, Maira G. Nunes, Paulo T. D. Siqueira</i>	
<u>E03 NUCLEAR ANALYTICAL TECHNIQUES</u>	
EXPERIMENTAL DESIGN TECHNIQUE APPLIED TO THE VALIDATION OF AN INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS PROCEDURE	2396
<i>Uanda Paula Medeiros Dos Santos</i>	
²²² RN DETERMINATION IN WATER AND BRINE SAMPLES USING LIQUID SCINTILLATION SPECTROMETRY	2408
<i>Thiago Cesar De Oliveira, Arno Heeren De Oliveira, Roberto Pellacani Guedes Monteiro, Rubens Martins Moreira</i>	
A COMPARATIVE STUDY USING DIFFERENT RESINS TO DETERMINE THORIUM ISOTOPES	2420
<i>Mychelle M. L. Rosa, Luan T. V. Cheberle, Maria Helena T. Taddei, Paulo S. C. Silva, Vera A. Maihara</i>	

A PORTABLE TOTAL REFLECTION X-RAY FLUORESCENCE SYSTEM FOR MULTIELEMENT ANALYSIS ON ALZHEIMER'S DISEASE INDUCED BY BETA AMYLOID OLIGOMERS IN SWISS MICE	2425
<i>Danielle S. Almeida, Amanda S Souza, Marcelino J Anjos, Matheus M. Brigido, Ricardo T Lopes, Sergio T Ferreira</i>	
ANALYSIS OF PERSISTENT ORGANIC POLLUTANTS (POPS) IN SEDIMENTS BY GC/ECD GENERATED BY NUCLIDE 63NI	2434
<i>Katia A. Mesquita, Jose O. V. Bustillos, Priscila O. Amaral</i>	
APPLICATION OF BIAS CORRECTION METHODS TO IMPROVE U ₃ Si ₂ SAMPLE PREPARATION FOR QUANTITATIVE ANALYSIS BY WDXRF	2440
<i>Marcos A. Scapin, Luciana C. Azevedo, Maria Ap. F. Pires, Marycel E. B. Cotrim, Sabine N. Guilhen</i>	
ASSESSMENT OF SR-90 IN WATER SAMPLES: PRECISION AND ACCURACY	2446
<i>Marcelo B. Nisti, Barbara P. Mazzilli, Bruna Castilho, Catia H. R. Saueia</i>	
BENTONITE MATURATION WITH "ÁGUAS DE LINDÓIA WATER" (SP).....	2455
<i>Jefferson K Torrecilha, Paulo S. C Silva</i>	
CAX – A SOFTWARE FOR AUTOMATED SPECTRUM ANALYSIS	2463
<i>Guilherme S Zahn, Frederico A. Genezini</i>	
CONCENTRATIONS OF SE, BA, ZN AND MN IN BRAZIL NUTS.....	2468
<i>Maria Jose Aguirre Armelin, Mitiko Saiki, Paulo S. Cardoso, Silvia M. F. Cozzolino, Vera A. Maihara</i>	
DETERMINATION OF AL, SI AND P IN CERTIFIED REFERENCE MATERIALS BY INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS	2475
<i>Amanda Noyori, Mitiko Saiki</i>	
DETERMINATION OF POROSITY INTO SUPPORTS FOR CERAMIC MEMBRANES OF TITANIUM DIOXIDE BY GAMMA SPECTROSCOPY	2484
<i>Umberto C. C. S. Siciliano, Elizabeth E. M. Oliveira, Luis E. B. Brandao, Paulo V. R. Carvalho</i>	
DETERMINATION OF RADON PARTITION COEFFICIENTS BETWEEN WATER AND DIFFERENT KINDS OF NAPLS FOR USE IN ANALYSIS OF RESIDUAL SOIL NAPLS.....	2490
<i>Sarah A. Bonfim, Angela F. M. Ferreira, Mariza R. Franklin, Paulo Roberto R. Ferreira, Zildete Rocha</i>	
DETERMINATION OF THORIUM AND URANIUM ISOTOPES IN THE MINING LIXIVIATION LIQUOR SAMPLES	2500
<i>Aluisio Souza Reis, Roberto Pellacani Guedes Monteiro</i>	
DETERMINATION OF URANIUM IN TREE BARK SAMPLES BY EPITHERMAL NEUTRON ACTIVATION ANALYSIS	2507
<i>Nicole P. Lima, Mitiko Saiki</i>	
DETERMINING RADIUM-226 CONCENTRATION FROM RADON-222 EMANATION IN BUILDING MATERIALS: A THEORETICAL MODEL.....	2516
<i>Rafael C Barreto, Allan F. N. Perna, Danielle C. Narloch, Flavia Del Claro, Janine N. Correa, Sergei A. Paschuk</i>	

DEVELOPMENT OF A METHOD FOR MULTIELEMENTAL DETERMINATION IN WATER BY EDXRF WITH RADIOISOTOPIC SOURCE OF ²³⁸ PU	2531
<i>Lino Angel Valcarcel Rojas, Alfredo Montero Alvarez , Camilo Serrano Fuentes, Dennyys Leyva Bombuse, Ivan Pupo Gonzalez , Jose A. Dos Santos Junior, Jossue Arteché Diaz , Juan Reinaldo Estevez Alvarez, Piet Van Espen, Zahily Herrero Fernandez</i>	
DEVELOPMENT OF A PORTABLE SYSTEM OF GRAZING EXIT X-RAY FLUORESCENCE APPLIED TO ENVIRONMENTAL AND BIOLOGICAL STUDIES.....	2541
<i>Ramon S. Santos, Davi F. Oliveira, Joaquim T. Assis, Marcelino J. Anjos</i>	
EDXRF APPLIED TO THE CHEMICAL CHARACTERIZATION OF DOMESTIC AND INDUSTRIAL SLUDGES	2551
<i>Gleyce K. A. Silva, Elvis J. Franca, Emmanuel D. Dutra</i>	
EFFECT OF SILICON DOPING IN HFO ₂ NANOPARTICLES FROM AN ATOMIC VIEW	2558
<i>Tatiane Silva Nascimento Sales, Artur Wilson Carbonari</i>	
ELEMENTARY CHARACTERIZATION OF SAMPLES OF PORTLAND CEMENT, NATURAL GYPSUM AND PHOSPHOGYPSUM MORTARS FROM BRAZIL	2566
<i>Danielle C. Narloch, Alessandro L. Lara, Catarina A. M. P. Torres, Gustavo Macioski, Janine N. Correa, Juliana M. Casali, Sergei A. Paschuk, Wellington Mazer</i>	
ELEMENTARY CHARACTERIZATION OF TI METAL ALLOYS USED IN IMPLANT DENTISTRY	2577
<i>Catarina A. M. P. Torres, Anna S. S. Rocha, Sergei A Paschuk, Valeriy Denyak, Janine Nicolossi Correa, Joaquim Teixeira De Assis, Liliane Camargo</i>	
ESTABLISHING ADEQUATE CONDITIONS FOR MERCURY DETERMINATION IN ENVIRONMENTAL SAMPLES BY INAA	2584
<i>Caroline Perez, Eliane C. Santos, Mitiko Saiki</i>	
EVALUATION OF MERCURY LEVELS IN HAIR OF CHILDREN RESIDENT IN ARTISANAL GOLD MINING AREA IN THE CITY OF CHAPADA DE NATIVIDADE-TOCANTINS	2598
<i>Marina Beatriz Agostini Vasconcellos</i>	
EVALUATION OF THE UNCERTAINTY ASSOCIATED WITH SAMPLE HOLDERS IN NAA MEASUREMENTS IN LAN/IPEN	2612
<i>Regina B Ticianelli, Frederico A. Genezini, Guilherme S. Zahn, Mitiko Saiki</i>	
HALOGENATED PESTICIDE ANALYSIS IN ORANGE JUICE BY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTOR (GC-ECD) WITH ⁶³ NI NUCLIDE	2617
<i>Kelly C Manhani, Cristiana A. Mendes, Joao P. A. Lacerda, Jorge L. Silva, Jose O. W. V. Bustillos, Priscila O. Amaral</i>	
INFLUENCE OF HAP ON THE POLIMERIZATION PROCESSES OF A POSSIBLE RADIOACTIVE BONE CEMENT.....	2629
<i>Carlos Julio Montano Valencia, Adolfo H. M. Silva, Maria H. Araujo, Tarcisio P. R. Campos</i>	
K ₀ -NEUTRON ACTIVATION ANALYSIS BASED METHOD AT CDTN: HISTORY, DEVELOPMENT AND MAIN ACHIEVEMENTS	2637
<i>Maria Angela Menezes, Ilza Dalmazio, Radojko Jacimovic</i>	
MICRO-HOMOGENEITY EVALUATION OF A BOVINE KIDNEY CANDIDATE REFERENCE MATERIAL.....	2645
<i>Liliana Castro, Edson G. Moreira, Marina B. A. Vasconcellos</i>	

MICROBEAM X-RAY FLUORESCENCE MAPPING OF CU AND FE IN HUMAN PROSTATIC CARCINOMA CELL LINES USING SYNCHROTRON RADIATION.....	2652
<i>Karolynne Araujo Marins Jose Rocha, Catarine G. L. Canellas, Eliane Gouvea Oliveira Barros, Luiz Eurico Nasciutti, Marcelino Jose Anjos, Maria Aparecida Oliveira, Ricardo Tadeu Lopes, Roberta Gama Leitao</i>	
MULTIELEMENTAL ANALYSIS OF GEOLOGICAL MATERIALS USING EDXRF	2664
<i>Zahily Herrero Fernandez, Elvis Joacir De Franca, Jose Araujo Santos Junior, Josineide Marques Nascimento Santos, Juan Reinaldo Estevez Alvarez, Lino Angel Valcarcel Rojas, Romilton Santos Amaral</i>	
PIRACICABA RIVER BASIN: EVALUATION OF CHEMICAL ELEMENTS IN DEEP SEDIMENT PROFILE BY INAA	2676
<i>Gleyce K. A. Silva, Elisabete A. De Nadai Fernandes, Elvis J. Franca, Isabel P. O. Cavalca, Katarine M. Barbosa Santos, Robson A. Santos, Vanessa S. Rodrigues</i>	
PRELIMINARY MEASUREMENTS OF K_0 VALUES FOR W-186	2683
<i>Livia F. Barros, Ione M. Yamazaki, Marina F. Koskinas, Mauro S. Dias, Renato Semmler</i>	
RADIOCHEMICAL METHODOLOGIES APPLIED TO ANALYTICAL CHARACTERIZATION OF LOW AND INTERMEDIATE LEVEL WASTES FROM NUCLEAR POWER PLANTS.....	2692
<i>Roberto Pellacani Monteiro, Aluisio S. R. Junior, Angela M. Amaral, Eliane S. C. Temba, Geraldo F. Kastner, Milton B. Franco, Thiago C. Oliveira</i>	
RADON EXHALATION FROM GRANITIC ROCKS	2701
<i>Sergei A. Paschuk, Aline Cristina Martin, Danielle Cristine Narloch, Flavia Del Claro, Janine N. Correa, Valeriy Denyak, Wellington Mazer</i>	
RELIABILITY OF THE K_0 -STANDARDIZATION METHOD USING GEOLOGICAL SAMPLE ANALYSED IN A PROFICIENCY TEST	2713
<i>Ana Clara O. Pelaes, Maria Angela B. C. Menezes</i>	
STUDY OF AN ALTERNATIVE METHOD FOR INSPECTION OF RODS WITH UO ₂ PELLETS EARLY MANUFACTURED	2721
<i>Joao P. R. Carnaval, Carlos A. S. Oliveira, Dalton J. M. C. Beltran</i>	
STUDY OF GAS PIPELINES CRACKS USING TRANSMISSION AND SCATTERING MEASURES WITH NUCLEAR TECHNIQUE.....	2731
<i>Marcela Ferreira Freitas</i>	
USE OF THE X-RAY DIFFRACTION TECHNIQUE IN THE ASSESSMENT OF AIR QUALITY AT PRESIDENTE ANTONIO CARLOS AVENUE, BELO HORIZONTE, BRAZIL	2742
<i>Raisa H S Cesa, Alberto A. Barreto, Ananda B. Cruz, Igor F. S. Moura</i>	

E04 ENVIRONMENTAL SCIENCES

AGRICULTURAL COUNTERMEASURE PROGRAM – AGRICP: FOOD AND DOSE MODULE IN ARGOS – ACCIDENT REPORTING AND GUIDANCE OPERATIONAL SYSTEM	2753
<i>Jaqueline A A Calabria, Gustavo Ferrari De Moraes</i>	
AIR POLLUTION ASSESSMENT USING TREE BARKS AS BIOMONITORS.....	2764
<i>Eliane C. Santos, Mitiko Saiki</i>	

ASSESSMENT OF TOXIC AND TRACE ELEMENTS IN THE SEA URCHIN STERECHINUS NEUMAYERI IN THE ANTARCTIC MARINE ENVIRONMENT	2776
<i>Mauricio B Alves, Andrews K. Emerenciano, Deborah I. T. Favaro, Isabella C. A. C. Bordon, Jose R. M. C. Silva</i>	
CHEMICAL CHARACTERIZATION OF URBAN PARK SOILS OF THE METROPOLITAN REGION OF SAO PAULO	2789
<i>Ana Maria G Figueiredo, Camila N. Lange, Jacinta Enzweiler, Joel B Sigolo</i>	
Co ADSORPTION IN KAOLINITE	2800
<i>Paulo Sergio Cardoso Silva, Eliel Da Silva Souza</i>	
CORRELATION BETWEEN THE METEOROLOGICAL DATA ACQUISITION SYSTEMS OF THE CENTRO EXPERIMENTAL ARAMAR	2811
<i>Rando M. Oliveira, Cassia M. L. Beu</i>	
DETERMINATION OF BTEX IN SURFACE AND GROUND WATERS AT CENTRO EXPERIMENTAL ARAMAR AREA	2819
<i>Erika Matoso, Nadia Segre, Rando M. Oliveira</i>	
DETERMINATION OF EFFECTIVE EQUIVALENT DOSE RATE REFERENCE VALUES IN SAO JOSÉ DO SABUGI PB BRAZIL	2831
<i>Nilson Vicente Medeiros, Filipe Lopes Barros Correa, Jose Araujo Santos Junior, Josineide Marques Nascimento Santos, Lino Varcacel Rojas, Ortueta Marvic Milan, Otavio Pereira Santos Junior, Patricia Brandao Silveira, Romilton Santos Amaral</i>	
DETERMINATION OF LEAD 210 IN SCALES FROM INDUSTRIAL PROCESSES.....	2839
<i>Ligia S. Faria, Geraldo Kastner, Joao Barbosa, Rubens M. Moreira</i>	
DETERMINATION OF NATURAL RADIONUCLIDES, U, TH-232, RA-226, RA-228, PB-210 AND K-40 IN SEDIMENTS FROM CANANÉIA-IGUAPE SYSTEM, BRAZIL	2845
<i>Gleyka D De Jesus, Catia H. R. Saueia, Deborah D. I. T. Favaro, Elisabete S. Braga, Marcelo B. Nisti, Vitor G. Chiozzini</i>	
DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) IN SEDIMENT SAMPLES OF BRAZILIAN MULTIPURPOSE REACTOR (RMB) INSTALLATION AREA	2860
<i>Juliana C. Silva, Elaine A. J. Martins, Maria A. F. Pires, Marycel E. B. Cotrim</i>	
DETERMINATION OF REES IN AGRICULTURAL SOILS OF PERNAMBUCO BY THE NEUTRON ACTIVATION TECHNIQUE.....	2870
<i>Fernanda Claudia S. S. Franca, Adriana Muniz De Almeida Albuquerque, Amanda Correia Almeida, Clovis Abrahao Hazin, Edson Goncalves Moreira, Eliane Valentim Honorato, Frederico Antonio Genezini, Jonnas Thiago De Lima Barbosa, Patricia Brandao Silveira, Regina Beck Ticianelli</i>	
DISTRIBUTION AND CONCENTRATION EVALUATION OF TRACE AND RARE EARTH ELEMENTS IN SEDIMENT SAMPLES OF THE BILLINGS AND GUARAPIRANGA RESERVOIR SYSTEMS	2878
<i>Larissa S. Silva, Deborah I. T. Favaro, Francisco J. Ferreira</i>	
ELECTRON BEAM IRRADIATION OF TEXTILE EFFLUENTS AND NON-IONIC ETHOXYLATED SURFACTANT FOR TOXICITY AND COLOR REMOVAL	2894
<i>Vanessa Silva Granadeiro Garcia, Jorge Marcos Rosa, Leonardo Gondim De Andrade Silva, Nathalia Fonseca Boiani, Stephanie Valencia Del Sole, Sueli Ivone Borrely</i>	

EQUIVALENT RADIUM IN CLAYS EXTRACTED IN NORTHEAST CITIES OF BRAZIL AND USED IN CIVIL CONSTRUCTION	2902
<i>Eduardo Eudes Nobrega De Araujo, Jose Araujo Santos Junior, Josineide Marques Nascimento Santos, Lino Angel Valcarcel Rojas, Romilton Dos Santos Amaral, Zahily Herrero Fernandez</i>	
EVALUATION OF ORGANIC ENDOCRINE DISRUPTORS IN WATER AT BRAZILIAN MULTIPURPOSE REACTOR – RMB INSTALLATION AREA	2909
<i>Larissa L Silva, Elaine A. J. Martins, Maria A. F. Pires, Marycel E. B. Cotrim</i>	
EVALUATION OF PAHS IN GROUNDWATER AND SURFACE WATERS AT MULTIPURPOSE REACTOR INSTALLATION AREA.....	2917
<i>Karoline De Paula Pereira, Elaine A. J Martins, Maria A. F. Pires, Marycel E. B. Cotrim</i>	
EVALUATION OF RADIONUCLIDE CONTAMINATION OF SOIL, COAL ASH AND ZEOLITIC MATERIALS FROM FIGUEIRA THERMOELECTRIC POWER PLANT	2927
<i>Denise Alves Fungaro, Caio S. Miranda, Felipe A Campello, Juliana C Izidoro, Paulo S. C Silva</i>	
EVALUATION OF RARE EARTH ELEMENTS, URANIUM AND THORIUM CONCENTRATIONS IN THE SOIL-PLANT SYSTEM BY NEUTRON ACTIVATION ANALYSIS, K ₀ -METHOD	2934
<i>Rodrigo R. Moura, Douglas J. Marques, Maria Angela B. C. Menezes</i>	
EVALUATION OF THE SEDIMENTATION RATE IN A SEDIMENT PROFILE OF BORTOLAN DAM – MG, BRAZIL	2946
<i>Heleine C. De Almeida, Barbara P. Mazzilli, Flavio V. T. S. Sousa, Maria Helena T. Taddei</i>	
IDENTIFICATION OF DIFFERENT GENERATIONS OF ALBITE THROUGH MICROCHEMICAL FINGERPRINT BY LA-ICP-MS.....	2957
<i>Lucas E D Amorim, Evando C De Matos, Francisco J Rios, Helena El Palmieri, Mauro C Geraldes, Monica E Freitas</i>	
INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS APPLIED TO THE STUDY OF CHEMICAL ELEMENT ACCUMULATION IN ORGANS OF RHINELLA SCHNEIDERI (WERNER, 1894)	2969
<i>Katarine M. Barbosa Santos, Ana M. M. A. Melo, Claudiney Bardini Junior, Elisabete A. De Nadai Fernandes, Elvis J. Franca, Karolayne E. M. Silva, Luiz Joaquim Silva Neto, Rebeca S. Cantinha , Robson A. Santos</i>	
INTERPRETATION OF THE NATURAL RADIOACTIVE ANOMALIES IN THE CENTRAL AREA OF BELO HORIZONTE/BRAZIL	2975
<i>Mayara Pinheiro Duarte, Alberto Avelar Barreto, Evelise Gomes Lara, Jose Augusto Ribeiro Da Silva, Natalia Fonseca Taveira, Talita Oliveira Santos, Zildete Rocha</i>	

VOLUME 5

METAL AND TRACE ELEMENT CONCENTRATION EVALUATION IN SEDIMENT PROFILES OF THE RIO TIETE, STATE OF SAO PAULO, BY INAA AND ICP OES TECHNIQUES.....	2982
<i>Josiane S Soares, Deborah I Favaro</i>	
METAL ASSESSMENT IN SEDIMENTS FROM THE GUARAPIRANGA RESERVOIR.....	2999
<i>Suellen N. Coutinho, Ana Maria G. Figueiredo, Gilson A. Quinaglia</i>	

METAL, TRACE AND RARE EARTH ELEMENT ASSESSMENT IN A SEDIMENTARY PROFILE FROM ITUPARARANGA RESERVOIR, SAO PAULO STATE, BRAZIL, BY INAA	3009
<i>Sharlley Alves Silva, Deborah Ines Teixeira Favaro, Henrique R. A. Heloise</i>	
NATURAL AND ARTIFICIAL NUCLIDES IN SALESÓPOLIS RESERVOIR BY GAMMA SPECTROMETRY	3020
<i>Paulo Sergio Cardoso Silva, Deborah I. T. Favaro, Flavio R. Rocha, Guilherme S. Zahn, Renato Semmler, Sandra R Damatto</i>	
NATURAL RADIONUCLIDES CONCENTRATION IN UNDERGROUNDS MINES MATERIALS	3029
<i>Talita De Oliveira Santos, Flavia Borges, Joao Batista Siqueira, Laura Cardoso Takahashi, Mayara Pinheiro Duarte, Natalia Fonseca Taveira, Paulo Cruz, Rosemary Pinheiro, Vandir Gouvea, Zildete Rocha</i>	
NATURAL RADIONUCLIDES FROM U-238 AND TH-232 SERIES AND INORGANIC CHEMICAL CHARACTERIZATION OF SOIL PROFILES AND SEDIMENT CORES OF THE TAIACUPEBA RESERVOIR, SAO PAULO, BRAZIL	3040
<i>Sandra R Damatto, Andre R Silva, Andrei M Surkov, Joseilton M Souza, Lucio Leonardo, Marcelo F Maduar, Pedro N Goncalves</i>	
NATURAL RADIONUCLIDES PRESENT IN THE BEACH SANDS OF GUARAPARI AND ANCHIETA, ESPIRITO SANTO, BRAZIL.....	3055
<i>Crissia Fontainha, Laura Cardoso Takahashi, Talita De Oliveira Santos, Victor Julio Crivellari Aguilari, Zildete Rocha</i>	
NATURAL RADIONUCLIDES IN EFFLUENTS RELEASE BY DEACTIVATED URANIUM MINE.....	3062
<i>Wagner De Souza Pereira, Ademir Xavier Da Silva, Alphonse G. C. A. Kelecom, Carlos Eduardo Cogo Pinto, Delcy De Azevedo Py Junior, Jose Marques Lopes, Marcos Moreira Antunes</i>	
OBSERVED VERSUS SIMULATED METEOROLOGICAL DATA: A COMPARISON STUDY FOR CENTRO EXPERIMENTAL ARAMAR	3072
<i>Cassia M. L. Beu</i>	
OSL-SAR DATING OF SEDIMENTS FROM BRAZILIAN AEOLIAN SYSTEM: DAMA BRANCA, RIO DE JANEIRO, MORPHODYNAMIC STUDY	3082
<i>Lucas S Carmo, Regina Dewitt, Shiguo Watanabe</i>	
RADIOMETRIC RESEARCH IN SOILS CULTIVATED WITH SUGAR CANE IN PERNAMBUCO - BRAZIL.....	3092
<i>Otavio P. Santos Junior, Arykerne N. C. Silva, Jose A. Santos Junior, Josineide M. N. Santos, Kennedy F. R. Damascena, Lino A. V. Rojas, Marvic O. Milan, Rafael R. Silva, Romilton S. Amaral, Romulo S. C. Menezes, Zahily H. Fernandez</i>	
RARE EARTH ELEMENTS, U AND TH IN TUNNEL DUSTS OF SAO PAULO CITY, BRAZIL	3104
<i>Renata M. Nory, Ana Maria G. Figueiredo</i>	
RELEASE OF ALPHA EMITTERS INTO THE ENVIRONMENT BY INDÚSTRIAS NUCLEARES DO BRASIL IN RESENDE.....	3111
<i>Wagner De Souza Pereira, Jessuca Julielle Da Sila Rodrigues, Maisa Fernandes Martins Santos, Rodney S. Santos, Vinicius Romero Mozer Torres</i>	

REMEDIATION OF CALDAS SITE BY NATURAL ATTENUATION	3120
<i>Renata D. A. Chaves, Ana Claudia Queiroz Ladeira, Paulo Cesar Horta Rodrigues</i>	
STUDIES OF EQUILIBRIUM AND KINETICS OF ADSORPTION OF CESIUM IONS BY GRAPHENE OXIDE.....	3129
<i>Fernando M Oliveira, Ademar J. Potiens Junior, Debora F. Rodrigues, Goro Hiromoto, Mauricio T. Oshiro, Solange K. Sakata, Vanessa N. Bueno</i>	
STUDY ON THE ELEMENTS CONCENTRATIONS ON SEABIRD FEATHERS BY INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS.....	3135
<i>Carolina Yume Sawamura Theophilo, Edson G. Moreira, Fernanda I. Colabuono, Rubens C. L. Figueira</i>	
SURFACE AND GROUND WATERS EVALUATION AT BRAZILIAN MULTIPURPOSE REACTOR INSTALLATION AREA.....	3144
<i>Thamiris B. Stellato, Cintia C. De Oliveira, Joyce R. Marques, Lucilena R. Monteiro, Mainara G. Faustino, Maria Aparecida F. Pires, Marycel E. B. Cotrim, Sabrina M. V. Soares, Tatiane B. S. C. Da Silva</i>	
TECHNICAL USE OF THE NEUTRON ACTIVATION – SOIL PLANT TRANSFER FACTOR	3158
<i>Wellington Silva, Douglas Jose Marques, Maria Angela B. C. Menezes</i>	
THORON (RN-220) INTERFERENCE IN THE DETERMINATION OF RN-222 EXHALATION RATE IN SOILS	3168
<i>Deric S Amaral, Clovis A Hazin, Elvis J Franca, Emerson E G Farias, Joao A. Souza Neto, Karolayne E M Silva, Mariana L O Santos</i>	
TOXIC ELEMENTS IN SEDIMENT AT BRAZILIAN MULTIPURPOSE REACTOR – RMB INFLUENCE AREA	3177
<i>Tatiane B. Seixas C. Silva, Camila Fernanda Rocha Teles Tanzillo Santos, Cintia Carvalho De Oliveira, Gabrielle Da Silva Miranda, Joyce Rodrigues Marques, Lucilena Rebelo Monteiro, Mainara Generoso Faustino, Maria Aparecida Faustino Pires, Marycel Elena Barboza Cotrim, Thamiris Brandino Stellato</i>	
TRACE ELEMENTS DISTRIBUTION IN ENVIRONMENTAL COMPARTMENTS.....	3186
<i>Juliana Cristina De Queiroz, Maria Luiza D. P. Godoy, Sueli Da Silva Peres</i>	
TRANSFER OF K-40 FROM SOIL TO GRASS AND GRASS TO MILK – SAMPLES OF BRAZILIAN RURAL AREAS.....	3197
<i>Karina B. M. Seabra, Sueli S. Peres</i>	
URANIUM, THORIUM AND RARE EARTH ELEMENTS DISTRIBUTION FROM DIFFERENT IRON QUADRANGLE SPRING WATERS.....	3208
<i>Claudia Alves Ferreira, Helena E. L. Palmieri, Maria Angela De B. C. Menezes, Paulo C. H. Rodrigues</i>	
USE OF MACROPHITES FOR REMOVAL OF Co E ZN IN LIQUID EFFLUENTS	3219
<i>Juliana De Almeida Silva Oliveira</i>	
USE OF THE NEUTRON ACTIVATION ANALYSIS, K ₀ -STANDARDIZED METHOD, IN THE EVALUATION OF THE AIR QUALITY IN CRITICAL POINTS OF BELO HORIZONTE.....	3225
<i>Igor Felipe Silva Moura, Alberto Avellar Barreto, Aline Fabiane Goncalves De Oliveira, Ananda Borjaille Cruz, Maria Angela De B. C. Menezes, Raisa Helena Sant’Ana Cesar</i>	
VALIDATION OF NITROGEN-NITRATE ANALYSIS BY THE CHROMOTROPIC ACID METHOD	3236
<i>Ana Claudia F. S. O. Santos, Erika Matoso</i>	

E05 NUCLEAR INSTRUMENTATION

- A COMPARISON BETWEEN RAD-HARD FLOAT ZONE SILICON DIODES AS GAMMA DOSIMETER IN RADIATION PROCESSING..... 3247
Fabio Camargo, Carmen C. Bueno, Josemary A. C. Goncalves
- A FUZZY METHOD FOR THE USABILITY EVALUATION OF NUCLEAR MEDICAL EQUIPMENT..... 3255
Claudio H. S. Grecco, Alfredo M. V. Filho, Isaac J. A. L Santos, Larissa P Farias, Marcos S Farias
- A NEW ^{124}Xe IRRADIATION SYSTEM FOR ROUTINE ^{123}I PRODUCTION AT THE IPEN-CNEN/SP 30 MEV CYCLOTRON ACCELERATOR..... 3266
Andre Luis Lapolli, Fernando C. Junqueira, Henrique Barcellos, Hylton Matsuda, Luiz C. A. Sumiya
- A SIMPLE AND POWERFUL XY-TYPE CURRENT MONITOR FOR 30 MEV IPEN/CNEN-SP CYCLOTRON..... 3278
Henrique Barcellos, Fernando De C. Junqueira, Hylton Matsuda, Luiz Carlos Do A. Sumiya, Osvaldo Luiz Costa
- AUTOMATED SPECTROMETER INTERFACE FOR MEASUREMENT OF SHORT HALF-LIFE SAMPLES FOR NEUTRON ACTIVATION ANALYSIS..... 3286
Andre Luis Lapolli, Edson Goncalves Moreira, Frederico Antonio Genezini, Guilherme Soares Zahn, Marcello Secco
- CALIBRATION OF A DEDICATED PROGRAM FOR 3D RENDERING. 3293
Marcos Eugenio Silva Abrantes, Maria Auxiliadora Fortini Veloso, Warley Ferreira Felix
- CARBON DOPED LANTHANUM ALUMINATE ($\text{LaAlO}_3:\text{C}$) UV THERMOLUMINESCENT PROPERTIES SYNTHESIZED BY SOLID STATE REACTION WITH THREE DIFFERENT MIXING METHODOLOGIES 3297
Nerlene Alves, Luiz Oliveira Faria, Wilmar Barbosa Ferraz
- CHARACTERISTICS OF Pb^{2+} DOPED CSI MATRIZ UNDER GAMMA AND NEUTRON EXCITATIONS 3307
Maria Da Conceicao Costa Pereira, Jose Roberto Berretta, Lucas Faustino Tomaz, Marlene Cristina Pinto, Tufic Madi Filho
- CONTROL SYSTEM AND AUTOMATION OF THE SPECTRUM ACQUISITION FOR A PERTURBED GAMMA-GAMMA ANGULAR CORRELATION SPECTROMETER 3316
Andre Luis Lapolli, Ademir Francisco Abade Stachowski, Artur Wilson Carbonari, Ragendra Narain Saxena
- DETERMINATION OF THE SCATTERED RADIATION AT THE NEUTRON CALIBRATION LABORATORY OF IPEN USING THE SHADOW CONE METHOD..... 3326
Tallyson Sarmiento Alvarenga, Bruno M. Freitas, Evaldo Simoes Fonseca, Linda V. E. Caldas, Walsan Wagner Pereira
- EFFECT OF THE OHMIC DROP IN A RPC-LIKE CHAMBER FOR MEASUREMENTS OF ELECTRON TRANSPORT PARAMETERS..... 3332
Anna R Petri, Alessio Mangiarotti, Carmen C Bueno, Josemary A C Goncalves
- ELECTRONIC RESPONSE OF A PHOTODIODE COUPLED TO A BORON THIN FILM..... 3340
Priscila Costa, Bianca Geraldo, Fabio E. Costa, Frederico A. Genezini, Guilherme S. Zahn, Marcus P. Raele, Nilson D. Viera, Ricardo E. Samad

EVALUATION OF DIGITAL DETECTOR ARRAYS SYSTEMS FOR INDUSTRIAL RADIOGRAPHY	3347
<i>Aline S. S. Silva, Celio S. Gomes, Davi F. Oliveira, Ricardo T. Lopes, Soraia R. Azeredo</i>	
GAMMA-RAY IMPURITIES OF ¹¹¹ IN, ²⁰¹ Tl, ¹⁷⁷ Lu AND ^{99m} Tc DETERMINED BY MEANS OF A HPGE SPECTROMETER	3359
<i>Denise S Moreira, Jamille S. Almeida, Marina F Koskinas, Mauro S Dias, Renato Semmler</i>	
INFLUENCE OF THE TEMPERATURE IN THE MEASUREMENT OF THE ²³⁵ U CONTENT IN FUEL RODS IN PASSIVE ROD SCANNER	3366
<i>Fabio S Junqueira, Carlos Adriano Da Silva Oliveira</i>	
LOW-COST AMPLIFIER FOR ALPHA DETECTION WITH PHOTODIODE	3371
<i>Claudio Domienikan, Frederico Antonio Genezini, Guilherme Soares Zahn, Priscila Costa</i>	
NAI(TL) DETECTORS MODELING IN MCNP-X AND GATE/GEANT4 CODES	3377
<i>Renato Raoni Werneck Affonso, Ademir Xavier Silva, Cesar Marques Salgado</i>	
PILE-UP CORRECTION FOR COINCIDENCE COUNTING USING A CAEN V1724 DIGITIZER	3385
<i>Ibere S. Ribeiro Junior, Frederico A. Genezini, Guilherme S. Zahn</i>	
PRIMARY STANDARDIZATION OF ⁹⁰ Sr- ⁹⁰ Y RADIOACTIVE SOLUTION	3392
<i>Marina F Koskinas, Caio P. Marques, Denise S. Moreira, Ione M. Yamazaki, Mauro S. Dias, Muhammad U. Rajput</i>	
PRODUCTION OF A SQUARE GEOMETRY AMERICIUM STANDARD SOURCE FOR USE WITH PHOTODIODES	3403
<i>Priscila Costa, Bianca Geraldo, Frederico A. Genezini, Julio T. Marumo, Marcus P. Raele, Roberto Vicente</i>	
RADIATION DETECTORS FOR USE IN MAJOR PUBLIC EVENTS IN BRAZIL: MAIN FEATURES, TESTS AND LESSONS LEARNED	3411
<i>Elder M. De Souza</i>	
RESPONSE MATRIX CALCULATION OF A BONNER SPHERE SPECTROMETER USING ENDF/B-VII LIBRARIES	3424
<i>Belen Juste, Gumersindo Verdu, Rafael Miro, Sergio Morato</i>	

E06 WASTE MANAGEMENT

30 YEARS OF THE GOIANIA ACCIDENT: A COMPARATIVE STUDY WITH OTHER RADIOACTIVITY DISPERSION EVENTS	3431
<i>Ricardo B. Smith, Roberto Vicente</i>	
CONCRETE CONTAINERS IN RADIOACTIVE WASTE MANAGEMENT: A REVIEW	3442
<i>Barbara L. Tavares, Cledola C. O. Tello</i>	
DETERMINATION OF NATURAL RADIOISOTOPES IN WASTE GENERATED IN THE PWTPS OF THE ZONA DA MATA OF THE STATE OF PERNAMBUCO-BRAZIL	3454
<i>Adriana Muniz De Almeida Albuquerque, Amanda Correia De Almeida, Clovis A. Hazin, Eliane Valentim Honorato, Fernanda Claudia S. S. Franca, Patricia Brandao Silveira</i>	

DEVELOPMENT OF A DATABASE SYSTEM FOR THE MANAGEMENT OF NON-TREATED RADIOACTIVE WASTE.....	3461
<i>Carolina Braccini Freire, Antonio Juscelino Pinto, Maria Judite Afonso Haucz, Paulo De Oliveira Santos, Sandro Rogerio Novaes Seles, Valeria Cuccia</i>	
ESTABLISHMENT OF CEMENTATION PARAMETERS OF DRIED WASTE FROM EVAPORATION COMING FROM NPP OPERATION.....	3468
<i>Erica R. Faria, Bruna S. Costa, Cledola C. O. Tello</i>	
GEOCHEMICAL SIGNATURE OF RADIOACTIVE WASTE: OIL NORM.....	3479
<i>Gilberto Thiago De Paula Costa, Carlos De A. Gomes, Emidio A. L. Sampaio, Jorge C. De Moura</i>	
INFLUENCE OF PYROLYTIC TEMPERATURE ON URANIUM ADSORPTION CAPABILITY BY BIOCHAR DERIVED FROM MACAUBA COCONUT RESIDUE.....	3493
<i>Sabine N Guilhen, Denise A Fungaro, Jorge A S Tenorio, Jorge Coleti</i>	
MANAGEMENT OF SPENT RADIOACTIVE SEALED SOURCES – OPTING FOR REMOVAL FROM NATIONAL TERRITORY	3502
<i>Rogerio P Mourao</i>	
OCCUPATIONAL MONITORING AT RADIOACTIVE WASTE DEPOSIT.....	3510
<i>Wagner De Souza Pereira, Ademir Xavier Da Silva, Franklin De Souza Cunha, Alphonse G. C. A. Kelecom</i>	
PRE-TREATMENT OF BITUMINIZED NPP WASTES FOR DISPOSAL IN NEAR-SURFACE REPOSITORY	3519
<i>Vanessa Mota Vieira, Cledola Cassia Oliveira De Tello</i>	
PROTOCOL FOR CHARACTERIZATION OF CLAY AS A BACKFILL AND COVERAGE LAYERS FOR SURFACE REPOSITORY	3529
<i>Daisy M. M. Santos, Cledola C. O. Tello</i>	
RADIOACTIVE DECAY PATTERN OF ACTINIDES PRESENT IN WASTE FROM MO-99 PRODUCTION.....	3541
<i>Goro Hiromoto, Jose Claudio Dellamano</i>	
RADIOACTIVITY ASSESSMENT OF THE WASTE DEPOSITED IN CANDONGA’S LAKE AFTER THE FUNDAO DAM’S COLLAPSE	3546
<i>Carolina Braccini Freire, Fernando Soares Lameiras, Gabriel Lopes Sales, Talita De Oliveira Santos, Valeria Cuccia, Zildete Rocha</i>	
REMOVAL OF COBALT FROM LUBRICANT OIL BY THE USE OF BENTONITE: EQUILIBRIUM, KINETIC AND ADSORPTION PRELIMINARY STUDIES.....	3557
<i>Valeria Cuccia, Ana C Q Ladeira, Sandro R N Seles</i>	
SELECTION OF A LEACHING TEST METHOD FOR WASTE PRODUCT CONFORMITY VERIFICATION.....	3569
<i>Isabel Sofia R. F. S. Lopes, Cledola C. O. Tello, Maria Judite A. Haucz</i>	
SIMULATION OF FIRE IN A DEPOSIT OF RADIOACTIVE WASTE AND THE RADIOLOGICAL RISK ASSOCIATED TO THIS SCENARIO.....	3578
<i>Erica N. Domingos, Lais A. Aguiar, Zelmo R. De Lima</i>	

STUDY OF A MIXTURE OF SOIL AND BRAZILIAN BENTONITE USING THE
“PROTOCOL FOR CHARACTERIZATION OF CLAY AS A BACKFILL AND COVERAGE
LAYERS FOR SURFACE REPOSITORY” 3585
Samara A. Barroso, Cledola C. O. Tello

TECHNICAL FEASIBILITY STUDY ON VOLUMETRIC REDUCTION OF RADIOACTIVE
WASTES USING PLASMA TECHNOLOGY 3594
*Eduardo S. P Prado, Ademar Potiens Junior, Alehandro Marquesi, Alvaro Guimaraes
Carneiro, Gilberto Petraconi Filho, Jose Claudio Dellamano, Roberto Carlos Santos*

WASTE VOLUME REDUCTION BY SPRAY DRYING..... 3598
Rodrigo Argolo Toscano, Cledola C. O. Tello

E07 ISOTOPIC TECHNIQUES IN ENVIRONMENTAL AND INDUSTRIAL PROCESSES

A THIRD GENERATION TOMOGRAPHY SYSTEM WITH FIFTY DETECTORS AND A
GAMMA-RAY SOURCE IN FAN BEAM GEOMETRY SIMULATED BY MONTE CARLO
METHOD..... 3609
*Margarida M. Hamada, Alexandre Alvarez, Alexandre F. V. Velo, Carlos H Mesquita, Diego
V. S. Santos , Francisco Springer, Samir L. Somessari, Vagner Fernandez*

CERTIFICATION OF FLOW MEASUREMENT METHODS AND CALIBRATION OF
FLOWMETERS IN OIL AND GAS INDUSTRY USING RADIOACTIVE TRACERS 3618
*Luis Eduardo Brandao, Armi Wanderley Nobrega, Eduardo Ramos Goncalves, Hericka
Oliveira Kenup, Julio Cesar Dualibi Filho, Renato Luiz Malheiro*

CHARACTERIZATION OF ELECTROCHEMICAL CELL FOR THE PRODUCTION OF
RADIOTRACER IN ORGANIC MEDIUM..... 3630
Hericka O Kenup-Hernandes, Ademir X Silva, Luis E. B Brandao

DEVELOPMENT OF COUNTING SYSTEM FOR WEAR MEASUREMENTS USING THIN
LAYER ACTIVATION AND THE WEARING APPARATUS 3637
Michel Franca A. Franca, Cesar M. Salgado, Julio C. Saita

EVALUATION OF ITERATIVE ALGORITHMS FOR TOMOGRAPHY IMAGE
RECONSTRUCTION – A STUDY USING A THIRD GENERATION INDUSTRIAL
TOMOGRAPHY VERSION..... 3649
*Alexandre Velo, Alexandre Gimenez Alvarez, Carlos Henrique Mesquita, Diego Vergacas
Carvalho, Margarida Mizue Hamada*

EXPERIMENTAL DEVICE FOR OBTAINING CALIBRATION FACTOR FOR THE TOTAL
COUNT TECHNIQUE 3661
Eduardo Ramos Goncalves, Delson Braz, Luis Eduardo Barreira Brandao

FLUID FLOW PROFILE IN A PACKED BEAD COLUMN USING RESIDENCE TIME
CURVES AND RADIOTRACER TECHNIQUES 3669
Ana Paula F Almeida, Cesar M Salgado, Eduardo Ramos Goncalves, Luis E. B Brandao

GALLIUM-67 CITRATE USED AS A TRACER OF ACETONE PRODUCTION ROUTES..... 3677
*Margarida M. Hamada, Alexandre G. Alvarez, Alexandre F Velo, Carlos H. Mesquita,
Marcio Haraguchi, Pedro E Aoki, Valdir C Da Silva, Wilson A. P. Calvo*

HYDROCHEMICAL AND ISOTOPIC STUDIES IN TWO NEIGHBORING RIVER BASINS IN
SEMIARID REGIONS OF MINAS GERAIS 3684
*Vinicius Goncalves Ferreira, Carlos Alberto De Carvalho Filho C F, Rubens Martins
Moreira*

RECONSTRUCTED IMAGE QUALITY ANALYSIS OF AN INDUSTRIAL INSTANT NON-SCANNING TOMOGRAPHY SYSTEM WITH DIFFERENT TYPES OF COLLIMATORS BY THE MONTE CARLO SIMULATION.....	3697
<i>Alexandre Velo, Alexandre Gimenez Alvarez, Carlos Henrique Mesquita, Diego Vergacas Carvalho, Margarida Mizue Hamada</i>	
STABLE ISOTOPE OXYGEN-18 AND DEUTERIUM ANALYSIS IN SURFACE AND GROUNDWATER OF THE JEQUITIBÁ RIVER BASIN, SETE LAGOAS, MG.....	3707
<i>Giovanna Giovanna Gardini, Elisangela A Santos, Rafael C. Pimenta, Raquel P. Scarpelli, Rubens M. Moreira</i>	
STUDY OF SALINITY IN AQUEOUS MEDIUM USING X-RAY BEAM WITH MCNP-X CODE.....	3716
<i>Caroline M Barbosa, Cesar M Salgado, Delson Braz</i>	

VOLUME 6

STUDY OF THE RADIOACTIVE PARTICLE TRACKING TECHNIQUE USING GAMMA-RAY ATTENUATION AND MCNP-X CODE TO EVALUATE INDUSTRIAL AGITATORS.....	3727
<i>Roos S Dam, Cesar M Salgado</i>	
STUDY OF VOLUME FRACTIONS IN BIPHASIC STRATIFIED REGIME USING GAMMA RADIATION.....	3739
<i>William L Salgado, Luis E. B. Brandao</i>	
USE OF ENVIRONMENTAL TRITIUM IN GROUNDWATER DATING IN THE UPPER JEQUITIBÁ RIVER BASIN, MUNICIPALITY OF SETE LAGOAS, MINAS GERAIS, BRAZIL	3750
<i>Rafael C Pimenta, Giovanna M. G. Linhares, Joao Herbert Moreira Viana, Mayara Pinheiro Duarte, Rubens Martins Moreira, Zildete Rocha</i>	
USE OF NUCLEAR TECHNIQUES AND HYDROCHEMICAL ANALYSIS TO EVALUATE THE IMPACT OF TAILINGS DAMS	3759
<i>Flaviane Moura Fernandes, Flavio Henrique Da Rocha Fonseca , Peter Marshall Fleming, Rafael Colombo Pimenta, Rubens Martins Moreira</i>	
USE OF TRANSMISSION GAMMA FOR STUDY OF CALCULATION OF INCRUSTATION THICKNESS IN OIL PIPELINES.....	3765
<i>Tamara Porfiro Teixeira, Cesar Marques Salgado</i>	

E08 MEDICINE AND HEALTH

ASPECTS OF AN AUTOMATIC SYSTEM OF IMPLANTS OF RADIOACTIVE SEEDS AND ANATOMIC OBJECT SIMULATOR FOR TESTS IN PROSTATE BRACHIRERAPIA	3777
<i>Leonardo Santiago M Silva, Tarcisio Passos Ribeiro De Campos, Viviane Vitoria Bento Braga</i>	
BRAZILIAN DEMAND FOR IODINE-125 SEEDS IN CANCER TREATMENT AFTER A DECADE OF MEDICAL PROCEDURES.....	3788
<i>Oswaldo L Costa, Anselmo Feher, Carla D Souza, Carlos A Zeituni, Daiane C B Souza, Fernando S Peleias Junior, Henrique B Oliveira, Joao A Moura, Maria E C M Rostelato</i>	
CHARACTERIZATION OF IONIZING RADIATION EFFECTS ON BONE USING FOURIER TRANSFORM INFRARED SPECTROSCOPY AND MULTIVARIATE ANALYSIS OF SPECTRA	3795
<i>Pedro Castro, Denise M. Zzell, Derly A. Dias</i>	

CONSTANCY TESTS AND QUALITY ASSURANCE OF THE ACTIVIMETERS USED IN A RADIOPHARMACEUTICAL PRODUCTION UNIT.....	3800
<i>Rodrigo M. G. Gontijo, Andrea V. Ferreira, Flavia M. Costa, Juliana B. Silva, Leonardo T. C. Nascimento, Marcelo Mamede</i>	
DEVELOPMENT OF AN HPLC METHOD FOR THE RADIOCHEMICAL PURITY EVALUATION OF 18F-FLUOROESTRADIOL	3810
<i>Ana Carolina De A. Bispo, Flavia M. Costa, Juliana B. Da Silva, Leonardo T. C. Do Nascimento, Marcelo Mamede</i>	
DOSIMETRIC EFFECTIVENESS FOR IMPLANTS WITH DISTINCT HO166-SEED DISTRIBUTIONS IN PROSTATE MODEL BASED ON PARAMETERS-OF-MERIT	3816
<i>Viviane Vitoria Bento Braga, Tarcisio Passos Ribeiro De Campos</i>	
DOSIMETRIC REPRODUCTION OF A LEFT-BREAST 3DCRT FIELD-IN-FIELD RADIATION THERAPY PLANNING IN AN ANTHROPOMORPHIC AND ANTHROPOMETRIC PHANTOM	3824
<i>Luciana Batista Nogueira, Cristiane Barsanelli, Jean Carlos Carlos Aquino, Jony Marques Geraldo, Tarcisio De Passos Ribeiro Campos</i>	
EFFECTS OF GAMMA IRRADIATION ON MICROHARDNESS AND FOURIER TRANSFORM INFRARED SPECTROSCOPY OF BOVINE BONE.....	3839
<i>Derly A Dias, Daisa L. Pereira, Denise Maria Zzell, Gabriela V. Gomes, Monica B. Mathor, Vanessa M. L. Sugahara</i>	
ENGINEERING DESIGN OF A NEUTRON GENERATOR	3844
<i>Daniel M. Coelho, Tarcisio P. R. Campos</i>	
EVALUATION BY BIODISTRIBUTION OF TWO ANTI-PEPTIDOGLYCAN APTAMERS LABELED WITH TECHNETIUM-99M FOR IN VIVO BACTERIAL INFECTION IDENTIFICATION	3853
<i>Ieda Mendes Ferreira, Andre Luis B De Barros, Antero Silva Ribeiro Andrade, Camila Maria S Lacerda, Sara R Santos, Simone O Fernandes, Valbert N Cardoso</i>	
EVALUATION OF 99MO/99MTC GENERATOR COLUMNS AFTER IRRADIATION WITH DIFFERENT ABSORBED DOSES	3864
<i>Neuza T. O. Fukumori, Jair Mengatti, Margareth M. N. Matsuda</i>	
EVALUATION OF GASTRIC EMPTYING BY MEANS OF SCINTIGRAPHY USING DIFFERENT TEST MEALS	3872
<i>Viviana Montoya Ojeda, Arnaldo Prata Mourao, Luciene Das Gracas Mota, Luiz G Vaz Coelho, Mateus Fontes Quintao, Viviane Parisitto Marino</i>	
EVALUATION OF THE SPATIAL RESOLUTION AND THE DOSE IN MAGNIFIED BREAST SIMULATION IN FUNCTION OF COLLIMATION SYSTEM.....	3879
<i>Erica M. Policarpo, Camila H. Murata, Cassio M. Oliveira, Kellen A. C. Daros, Marcos P. S. Alves, Thiago M. B. Farias</i>	
EXPOSURE MEASUREMENT IN THE NEIBORING HOSPITAL BEDS DURING AN X-RAY PROCEDURE IN HOSPITALIZATION UNIT	3887
<i>Rafael E Goto, Felipe F. Capeleti, Henrique V. Cabete</i>	
IMAGE QUALITY ASSESSMENT USING NEMA NU 4/2008 STANDARDS IN SMALL ANIMAL PET SCANNER.	3892
<i>Rodrigo M. G. Gontijo, Andrea V. Ferreira, Juliana B. Silva, Marcelo Mamede</i>	

LOW YIELD SYNTHESSES OF [¹⁸ F]FDG AT CDTN/CNEN-MG: PROBLEM DIAGNOSIS AND CORRECTIVE ACTIONS.....	3903
<i>Hugo M. Dalle, Ake Olsson, Carlos Malamut, Eduardo S. Valente, Juliana B. Silva, Leonardo T. Borges, Leonardo T. C. Nascimento, Marina B. Silveira, Phong Truong, Soraya M. Z. M. D. Ferreira</i>	
METODOLOGICAL ISSUES IN PROTEIN AND LIPIDIC EXPRESSIONS IN BRAIN TISSUE EXPOSED TO Co ⁶⁰ BASED ON DESI/MALDI-MS	3918
<i>Matheus F Soares, Fernanda N. Silva, Marcos N. Eberlin, Pedro Henrique Vendramini, Rodinei Augusti, Tarcisio P. R. Campos</i>	
OBTENTION AND APPLICATION OF RECOVERY COEFFICIENTS IN SUV VALUES TO QUALITY CONTROLS IN PET EQUIPMENTS.....	3927
<i>Cassio M Oliveira, Lidia V. De Sa, Marcelo Mamede, Priscila Do Carmo Santana, Teogenes Augusto Da Silva</i>	
OPTICAL AND HISTOLOGICAL EVALUATION IN HUMAN TENDON TISSUE STERILIZED BY IONIZING RADIATION	3937
<i>Ana Paula Funari, Anderson Z. De Freitas, Daniel P. Vieira, Jurandir T. De Miranda, Luiz A. U. Santos, Monica B. Mathor, Nelson M. Alves, Uri Antebi</i>	
POSSIBLE THERAPEUTIC USE OF RADIOLABELED CISPLATIN.....	3949
<i>Alexandre S Leal, Felipe D Bernardes, Natalia A Z Goncalves</i>	
PROPOSED PARAMETERS FOR A CIRCULAR PARTICLE ACCELERATOR FOR PROTON BEAM THERAPY OBTAINED BY GENETIC ALGORITHM.....	3955
<i>Gustavo Lobato Campos, Tarcisio P. R De Campos</i>	
RADIATION INDUCTION INTERACTION BETWEEN CUSO ₄ AND CLINICAL GEL FOR USE IN MRI.....	3967
<i>Adriana De Souza Medeiros Batista, Esther Lorryne Machado Pereira, Gabriela Pontes Cardoso, Rodrigo Modesto Gadelha Gontijo, Sidney Sena Soares</i>	
RECOVERY OF ¹³¹ I FROM FISSION ⁹⁹ MO PRODUCTION PROCESS BY DISTILLATION METHOD.....	3974
<i>Marcos O. Damasceno, Christina A. L. G. De O. Forbicini, Tatiana S. Balogh</i>	
SEMI-QUANTITATIVE EVALUATION OF [99MTC]TRODAT-1 BINDING POTENTIAL BY TWO METHODS OF SPECT IMAGE RECONSTRUCTION.	3983
<i>Marilia Alves Dos Reis, Cassio Miri Oliveira, Mario Luiz Vieira Castiglioni, Melissa Furlaneto Lellis Leite, Rodrigo Affonseca Bressan</i>	
STUDY OF ^{99m} Tc-DMSA BIODISTRIBUTION IN EXPERIMENTAL ANIMALS.....	3991
<i>Thais O. M. Castro, Carlos F. Felgueiras, Elaine B. Araujo, Jair Mengatti, Margareth M. N. Matsuda, Maria T. Colturato, Natanael Gomes Da Silva, Neuza T. O. Fukumori</i>	
STUDY ON FATAL AND NONFATAL CANCER CASES OCCURED IN DIFFERENT REGIONS OF SAO PAULO CITY	4004
<i>Talita S. Coelho, Bruna T. M. Dias, Gaiane Sabundjian, Marco A. R. Fernandes, Maria D. P. E. Diz, Seung M. Lee</i>	
SYNTHESIS AND CHARACTERIZATION OF [¹¹ C]PK11195 AS A PET RADIOPHARMACEUTICAL	4017
<i>Fernanda A. F. Almeida, Amanda P Oliveira, Juliana B Silva, Leonardo T. C Nascimento, Marcelo Mamede, Marina B Silveira</i>	

THE SYNTHESIS OF RADIOACTIVE POLYMERIC MICROSPHERES FOR SPECT IMAGING DURING EMBOLIZATION PROCEDURES.....	4026
<i>Luciana Carvalheira, Jose Carlos Costa Da Silva Pinto, Marcio Nele De Souza</i>	
VALIDATING A VIRTUAL SOURCE MODEL BASED IN MONTE CARLO METHOD FOR PROFILES AND PERCENT DEEP DOSES CALCULATION	4033
<i>Renata Aline Del Nero, Helio Yoriyaz, Marcos Vinicius Nakaoka Nakandakari</i>	
VALIDATION OF A NEW ANALYTICAL PROCEDURE FOR DETERMINATION OF RESIDUAL SOLVENTS IN [¹⁸ F]FDG BY GAS CHROMATOGRAPHY	4045
<i>Flavia Mesquita Costa, Cassiano L. S. Costa , Juliana Batisa Da Silva, Soraya M. Z. M. D. Ferreira</i>	
VALIDATION OF AN HPLC METHOD FOR DETERMINATION OF CHEMICAL PURITY OF [¹⁸ F]FLUOROMISONIDAZOLE ([¹⁸ F]FMISO)	4052
<i>Natalia Cassia Nascimento, Fernando Andrade Lima, Juliana Batista Silva, Leonardo Tafas Nascimento, Marina Bicalho Silveira, Mercia Liane Oliveira, Soraya Zandim Ferreira</i>	
VIRTUAL REALITY INTERACTIVE SIMULATOR FOR TRAINING HEALTHCARE PROFESSIONALS IN THE USE OF IONISING RADIATIONS.....	4063
<i>Eugenio R. Marins, Ana Cristina De H. Nascimento, Ana Paula Legey, Andre C. Do E. Santo, Antonio C. De A. Mol, Jaime B. De Carvalho, Jefferson L. Da Silveira, Julio Cezar Suinta</i>	
<u>E09 FOOD SCIENCE</u>	
ANALYSIS OF PHYSICAL PROPERTIES OF COLOR AND TEXTURE IN GOJI-BERRY PROCESSED BY IONIZING RADIATION.....	4072
<i>Pamela Galo Da Silva, Amanda Cristina Ramos Koike, Anna Lucia Casanas Haasis Villavicencio, Flavio Thihara Rodrigues</i>	
ANALYSIS ON ANTIOXIDANT ACTIVITY BY ORAC METHOD IN VIOLA TRICOLOR L. FLOWERS PROCESSED BY IONIZING RADIATION	4079
<i>Amanda C. R. Koike, Anna L. C. H. Villavicencio, Flavio T. Rodrigues, Pamela G. Silva, Severino M. De Alencar</i>	
ANTIOXIDANT ACTIVITY OF DIANTHUS CHINENSIS L. FLOWERS PROCESSED BY IONIZING RADIATION.....	4086
<i>Amanda C. R. Koike, Amilcar L. Antonio, Anna L. C. H. Villavicencio, Isabel C. F. R. Ferreira, Lillian Barros</i>	
EVALUATION OF KNOWLEDGE ABOUT IRRADIATED FOODS BY FOOD BANKS IN BRAZIL - DISSEMINATION OF IRRADIATION IN FOODS.....	4094
<i>Juliana M. A. S. Gallo</i>	
FLOW CYTOMETRY BASED MICRONUCLEUS ASSAY FOR EVALUATION OF GENOTOXIC POTENTIAL OF 2-ACBS THROUGH THE MICRONUCLEOUS TEST IN HEPATIC CELLS HEPG2.....	4098
<i>Angelica B Barbezan, Anna Lucia Casanas Haasis Villavicencio, Carla J. B. Santos, Daniel Perez Vieira, Glaucia Maria Machado Santelli, Luma Ramirez Carvalho</i>	
GAMMA RADIATION IN THE CONSERVATION CUCURBITA MOSCHATA PROCESSED MINIMALLY	4113
<i>Valter Arthur, Jorge C. Filho, Juliana A. Pires, Lucia C. A. S. Silva, Marcia N. C. Harder, Paula B. Arthur, Suely S. H. Franco</i>	

INFORMATION ON THE PRESENCE OF 2- ALKYL CYCLOBUTANONES IN ANIMAL FEED AFTER IONIZING RADIATION TREATMENT	4122
<i>Alexsandra Maria De Campos, Angelica B Barbezan, Anna Lucia C. H Villavicencio</i>	
INOZING RADIATION EFFECTS IN BRAZILIAN GRAPE TREE WINE	4129
<i>Marcia Nalesso Costa Harder, Erika Maria Roel Gutierrez, Juliana Angelo Pires, Lucia Cristina Aparecida Santos Silva, Valter Arthur</i>	
IRRADIATION EFFECT ON PEROXIDATION INDEX ON OKARA-BASED SOYBEAN FLOUR.....	4139
<i>Ana Paula N. Sa, Anna Lucia C. H. Villavicencio, Juliana A. Giannoni, Silvana S. P. Goes-Favoni, Valter Arthur</i>	
IRRADIATION GAMMA ON CHITOSAN FILMS	4146
<i>Valter Arthur, Adriana R. M. De Souza, Luana M. L. De Mello</i>	
NEUTRON ACTIVATION ANALYSIS CHARACTERIZATION PROCEDURES FOR FISH CONSUMED AT SAO PAULO CITY	4157
<i>Bruno Tappiz, Edson G. Moreira</i>	
SEAWEEDS AS SOURCE OF THE ESSENTIAL ELEMENTS	4163
<i>Caroline Rodrigues Albuquerque, Cassio Bessa De Lima Alves, Paulo Sergio Cardoso Da Silva, Vera Akiko Maihara</i>	
TRACE ELEMENTS DETECTION IN WHOLE FOOD SAMPLES BY NEUTRON ACTIVATION ANALYSIS, K ₀ - METHOD	4169
<i>Marcia Maia Sathler, Maria Angela B. C. Menezes, Paula M. B. Salles</i>	
VARIABILITY OF ELECTRON SPIN RESONANCE (ESR) SIGNAL OF GAMMA - IRRADIATED STARCHES	4178
<i>Nelida L Del Mastro, Gilberto D. Da Silva, Orlando Rodrigues Jr</i>	
X-RAY DIFFRACTION (XRD) PATTERN AND RELATIVE CRYSTALLINITY OF IRRADIATED ARROWROOT STARCH	4183
<i>Nelida L Del Mastro, Aline Goncalves Barroso, Rafael H. L. Garcia</i>	
 <u>E10 BIOLOGY</u>	
ANALYTICAL METHODS FOR ANALYSIS OF AMINO ACIDS AND PROTEINS NEUTRON CROSS-SECTIONS	4188
<i>Dante L. Voi, Francisco De O. Ferreira, Helio Rocha, Luciana Carvalheira, Rogerio C. Nunes</i>	
EFFECTS OF GAMMA RADIATION ON THE OVARIAN DEVELOPMENT OF THE SOUTH AMERICAN FRUIT FLY, ANASTREPHA FRATERCULUS (WIEDEMANN, 1830)	4195
<i>Thiago Mastrangelo, Wanessa Scopel, Victor Botteon</i>	
EFFECTS OF THE IRRADIATION IN SEEDS OF COTTON	4202
<i>Valter Arthur, Ana L. Araujo, Camilo F. De O. Franco, Jose G. Franco</i>	
EVALUATION OF RADIATION INDUCED GENOTOXICITY ON HUMAN MELANOMA CELLS (SK-MEL-37) BY FLOW CYTOMETRY.....	4209
<i>Leticia Bonfim, Luma Ramirez de Carvalho, Daniel Perez Vieira</i>	

GAMMA RADIATION FOR ALL PHASES OF LIFE CYCLE OF COTTON BOLLWORM HELICOVERPA ARMIGERA AIMING AT ITS CONTROL	4220
<i>Valter Arthur, Andre Ricardo Machi, Gianni Queiroz Hadadd</i>	
GAMMA RADIATION FOR THE QUARANTINE TREATMENT OF CALLOSOBRUCHUS MACULATUS IN BEAN VIGNA SINENSIS	4225
<i>Valter Arthur, Andre R. Machi, Jose G. Franco, Lucia S. Fontes, Marcia N. C. Harder, Paula B. Arthur, Rodrigo S. Rossi, Suely S. H. Franco</i>	
IN VITRO EFFECT OF $\alpha V\beta 3$ AND $\alpha V\beta 5$ INTEGRIN INHIBITOR CILENGITIDE COMBINED WITH IONIZING RADIATION ON HUMAN MALIGNANT TUMOR CELLS	4231
<i>Felipe H. S. Silva, Eladio O. F. Sanchez, Raquel Gouvea Santos</i>	
IN VITRO RADIATION PROTECTION OF PERIPHERAL BLOOD MONONUCLEAR CELLS BY TETRAGONA CLAVIPES PROPOLIS	4240
<i>Patricia Lima Falcao, Carlos Julio Montano Valencia, Naira De Souza Gomes Nogueira, Tarcisio Passos Ribeiro De Campos</i>	
LOW DOSES OF GAMMA RADIATION IN SOYBEAN	4249
<i>Valter Arthur, Anna L. C. H. Villavicencio, Caio H. Franco, Jose G. Frsnco, Paula B. Arthur, Suely S. H. Franco</i>	
OXIDATIVE STRESS IN MOLLUSKS BIOMPHALARIA GLABRATA EXPOSED TO GAMMA RADIATION	4255
<i>Williams N Siqueira, Ana M. M. A. Melo, Dewson R. Pereira, Edvane B. Silva, Elvis J. Franca, Luanna R. S. Silva, Ricardo L. C. Luna Filho, Ricielle L. Augusto</i>	
PREVIOUS 60-CO RADIATION FROM PARATRYGON AIEREBBA MUCUS INDUCES THE PRODUCTION OF HIGHLY RESPONSIVE ANTIBODIES AND A BETTER IMMUNE RESPONSE IN MICE.....	4262
<i>Gabriela Ortega Coelho Thomazi, Andre Moreira Rocha, Andrea Da Costa, Andres Jimenez Galisteo Junior, Carla Simone Seibert, Glaucie Jussilane Alves, Heitor Franco De Andrade Junior, Jaqueline Pollizeli Rodrigues, Larissa Barros Silvestre Jacome, Nanci Do Nascimento, Patrick Jack Spencer, Raquel Da Silva Aires, Thompson De Oliveira Turibio</i>	
RESVERATROL RADIOMODIFIER EFFECT ON ZEBRAFISH BY EMBRIOLARVAL ASSAY	4271
<i>Kelme C. Damasceno, Adriana Kuchisnki Cavalcante, Fernanda Caroline Silva Mamede, Jose Roberto Rogero, Monica Lopes-Ferreira, Sizue Ota Rogero</i>	
STUDY OF THE RADIOMODIFIER EFFECT OF PITYROCARPA MONILIFORMIS EXTRACT.....	4279
<i>Ricardo L. C. Luna Filho, Ana M. M. A. Melo, Dewson R. Pereira, Hianna A. M. F. Silva, Joao V. T. Moraes, Williams N. Siqueira</i>	
THE INFLUENCE OF METFORMIN AS A RADIOSENSITIZER OF CELLS SUBMITTED TO GAMMA RADIATION	4286
<i>Leticia S. Goncalves, Alline G Pereira, Jamilson N. R. Filho, Luanai G. L. Gerolis, Maria J. Neves</i>	
USE OF 2-COLOR FLOW CYTOMETRY TO ASSESS RADIATION-INDUCED GENOTOXIC DAMAGE ON CHO-KI CELLS.....	4293
<i>Daniel Perez Vieira, Leticia Bonfim, Luma Ramirez De Carvalho</i>	

USE OF BIOMPHALARIA GLABRATA HEMOCYTES AS A BIOMARKER OF EXPOSURE TO IONIZING RADIATION.....	4302
<i>Ricardo L. C. Luna Filho, Ana M. M. A. Melo, Hianna A. M. F. Silva, Jose L. F. Sa, Larissa S. A. Melo, Maira V. Lima, Vinicius H. T. Morais, Williams N. Siqueira</i>	

E11 NUCLEAR PHYSICS

STUDY OF SECULAR EQUILIBRIUM REINSTATEMENT ON UO ₂ PELLETS MANUFACTURED BY AUC ROUTE.....	4313
<i>Joao P. R. Carnaval, Carlos A. S. Oliveira, Dalton J. M. C. Beltran</i>	
TOROIDAL DEUTERON ACCELERATOR FOR MO-98 NEUTRON ACTIVATION	4325
<i>Wagner Leite Araujo, Tarcisio Passos Ribeiro Campos</i>	

E12 MATERIALS SCIENCE AND TECHNOLOGY

APPLICATIONS OF LITHIUM IN NUCLEAR ENERGY	4333
<i>Glaucia A. C. De Oliveira, Flavia K. Miyamoto, Joao C. Ferreira, Jose A. Seneda, Jose O. V. Bustillos, Maise P. Gimenez, Rafaeli M. De Moraes, Vanderlei S. Bergamaschi</i>	
CHARACTERIZATION OF CRYSTALLINE PHASES OF (U,ER)O ₂ PELLETS BY X-RAY DIFFRACTION.....	4338
<i>Alberto E. S. Sansone, Elita F. U. Carvalho, Humberto G. Riella</i>	
CHARACTERIZATION OF PALLADIUM NANOPARTICLES ANCHORED ON GRAPHENE OXIDE OBTAINED BY ELECTRON BEAM.....	4347
<i>Luiza F. Sobrinho, Almir O. Neto, Flavia R. O. Silva, Rafael H. L. Garcia, Solange K. Sakata</i>	
CORROSION BEHAVIOR OF DISSIMILAR WELD JOINT OF 316L AND ALLOY 182 FILLER METAL WITH DIFFERENT POST-WELD HEAT TREATMENTS IN SALINE ENVIRONMENTS	4356
<i>Joao H N Garcia, Emerson G Rabello, Luiza Esteves, Neice F Santos, Wagner R C Campos</i>	
CYCLOHEXANONE MICROFLUIDIC EXTRACTION OF RADIOACTIVE PERRHENATE FROM ACID SOLUTIONS.....	4366
<i>Ilza Dalmazio, Elisabeth Oehlke</i>	
EFFECT OF GAMMA RADIATION ON POLYVINYLPIRROLIDONE HYDROGELS	4374
<i>Maria Jose Alves Oliveira, Ademar Benevolo Lugao, Mara Mello Leite Munhoz, Mara Tania Silva Alcantra, Pablo Antonio Salvador Vasquez</i>	
ELECTRON BEM IRRADIATION PROCESS APPLIED TO PRIMARY AND SECONDARY RECYCLED HIGH DENSITY POLYETHYLENE	4379
<i>Aurea B. C. Geraldo, Eduardo De Moura, Jessica Raquel Cardoso</i>	
ENVIRONMENTAL INFLUENCE ON THE USAGE OF ADHESIVE SINGLE LAP JOINTS IN NUCLEAR INDUSTRY APPLICATIONS.....	4388
<i>Gilberto Thiago De Paula Costa, Felipe Do Carmo Amorim, Joao Marciano Laredo Dos Reis, Joao Fellipe Brandao De Souza, Jorge Costa De Moura</i>	
GAMMA RADIATION OF QUARTZ FROM ENTRE RIOS (SC) AND QUARAI (RS).....	4397
<i>Cyro Teiti Enokihara, Paulo Roberto Rela, Rainer Aloys Schultz Guttler</i>	

INFLUENCE OF GAMMA IRRADIATION DOSE AND CONCENTRATION OF LAPONITE CLAY ON POLY (N-VINYL-2-PYRROLIDONE) HYDROGELS	4412
<i>Vinicius J. Santos, Ademar B. Lugao, Angelica T. Zafalon, Duclerc F. Parra</i>	
INFLUENCE OF RADIATION ON THE THERMAL AND MECHANICAL PROPERTIES OF BISGMA / TEGDMA BASED NANOCOMPOSITES USING PRE-IRRADIATED MMT NANOPARTICLES AS FILLER.....	4420
<i>Tamiris Martins Ribeiro Santos, Duclerc Fernandes Parra, Leticia Cidreira Boaro, Luiza Mello Paiva Campos, Mariana Jesus Santos</i>	
PERMEABILITY AND PORE STRUCTURE CONNECTIVITY OF BASIC CONCRETE FORMULATIONS TO USE IN NEAR-SURFACE REPOSITORIES FOR RADIOACTIVE WASTES.....	4427
<i>Evandro Tolentino, Carlos Eduardo De Oliveira Santos, Cledola Cassia Oliveira De Tello</i>	
PRELIMINARY STUDIES ON 1-VINYL-2-PYRROLIDONE GRAFTING ONTO CELLULOSE BY PRE-IRRADIATION METHOD.....	4434
<i>Yasko Kodama, Patrick Severich , Rodrigo Da Costa Dutra</i>	
PREPARATION OF NEODYMIUM ACETATE FOR USE IN NUCLEAR AREA AND NANOTECHNOLOGY	4445
<i>Jose Antonio Seneda, Carlos A. S. Queiroz, Walter R. Predeira Filho</i>	
RECYCLING AND MELTING PROCESS OF ZIRCONIUM ALLOYS CHIPS.....	4453
<i>Luis Augusto Mendes Dos Reis, Cristiano Stefano Mucsi, Jesualdo Luiz Rossi, Luiz Alberto Tavares Pereira, Luzinete Pereira Barbosa, Maicon Cavalieri Alencar, Maurilio Pereira Gomes</i>	
SMALL SPECIMEN TECHNIQUE FOR ASSESSING THE MECHANICAL PROPERTIES OF METALLIC NUCLEAR COMPONENTS	4462
<i>Arnaldo H. P. Andrade, Aparecido E Morcelli, Raquel M. Lobo</i>	

VOLUME 7

STRUCTURAL AND MICROSTRUCTURAL ANALYSIS OF THE U-GD-O SYSTEM USING X-RAY DIFFRACTION DATA	4468
<i>Gaspar D Filho, Andre S. B. Silva , Elita C. Urano, Humberto G. Riella, Kengo Imakuma, Luis G Martinez , Michelangelo Durazzo , Rodrigo U Ichiwaki, Xabier M Turrillas</i>	
STRUCTURAL AND MICROSTRUCTURAL CHARACTERIZATION OF U3SI2 NUCLEAR FUEL USING X-RAY DIFFRACTION.....	4479
<i>Rodrigo Uchida Ichikawa, Adonis M. Saliba-Silva, Andre S. B. Da Silva, Luis G. Martinez, Nelson B. Lima, Rafael H. L. Garcia, Xabier Turrillas</i>	
STUDY AND METHODOLOGIES FOR FIXING EPOXY RESIN IN RADIOACTIVE SOURCES USED FOR BRACHYTHERAPY	4486
<i>Bruna Teiga Rodrigues, Beatriz R. Nogueira, Carla D. Souza, Carlos A. Zeituni, Cintia A. Tozetti, Daiane C. B. Souza, Dib K. Junior, Jose T. Silva, Maria E. C. M. Rostelato, Raquel V. Souza, Rodrigo T. Abreu, Vagner Fernandes</i>	
STUDY OF ABLATION ON SURFACES OF NUCLEAR-USE METALS IRRADIATED WITH FEMTOSSECOND LASER.....	4493
<i>Alessandro Francelino Nogueira, Nilson Dias Vieira Junior, Ricardo E Samad, Wagner De Rossi</i>	

STUDY OF TENSILE TEST BEHAVIOR OF AUSTENITIC STAINLESS STEEL TYPE 347 SEAMLESS THIN-WALLED TUBE IN COLD-WORKED CONDITION	4505
<i>Clarice Terui</i>	
STUDY ON WELDING THERMAL CYCLE AND RESIDUAL STRESS OF UNS S32304 DUPLEX STEEL SELECTED AS EXTERNAL SHIELD FOR A TRANSPORT PACKAGING OF MO-99	4518
<i>Evandro G. Betini, Caruline S. C. Machado, Cristiano S. Mucsi, Jesualdo L. Rossi, Luis A. Reis, Marcos T. D Orlando, Mariana X. Milagre, Maurilio P. Gomes, Temistocles S Luz</i>	
SYNTHESIS AND CHARACTERIZATION OF POLYMERIC HYDROGEL CONTAINING CAFFEINE FOR COSMECEUTICAL APPLICATIONS.....	4527
<i>Tiago C. Santos, Ademar Benevolo Lugao, Maria Jose Alves Oliveira</i>	
THE CHARACTERIZATION OF WOUND DRESSING POLY(VINYL PYRROLIDONE) HYDROGELS USING GAMMA RADIATION	4532
<i>Talita Colombi Rezende, Christiano J. G. Pinheiro, Heberth D. Paula, Pedro A. B. Morais</i>	
THE EFFECT OF GAMMA RADIATION ON THE STRUCTURE OF GRAPHENE OXIDE AND GRAPHENE OXIDE FUNCTIONALIZED WITH AMINO-PEG	4544
<i>Jaqueline J S Soares, Dalva L. A. De Faria, Marcio H. Zaim, Paulo S. Santos, Raynara M. S. Jacovone, Solange K. Sakata</i>	
THE RECYCLING THROUGH MELTING MACHINING CHIPS, PRELIMINARY RESULTS	4553
<i>Luiz A Pereira, Jesualdo Luiz Rossi</i>	
THERMAL STABILITY TEST OF UO ₂ -DOPED PELLET MANUFACTURED AT INB.....	4561
<i>Diogo Ribeiro Costa, Artur C. Freitas</i>	
X-RAY DIFFRACTION ANALYSIS OF KY3F10 NANOPARTICLES DOPED WITH ND AND PRELIMINARY STUDIES FOR ITS USE IN HIGH-DOSE RADIATION DOSIMETRY	4570
<i>Rodrigo Uchida Ichikawa, Andre S. B. Da Silva, Horacio M. S. M. D. Linhares, Izilda M. Ranieri, Luis G. Martinez, Maria I. Teixeira, Xabier Turrillas</i>	
<u>E13 IRRADIATORS, LICENSING, AND REGULATIONS OF RADIOACTIVE INSTALLATIONS</u>	
C-188 CO-60 SOURCES INSTALLATION AND SOURCE RACK LOADING OPTIMIZATION PROCESSES IN A GAMMA IRRADIATION FACILITY	4579
<i>Paulo De S. Santos, Pablo A . S. Vasquez</i>	
CHARACTERIZATION OF ATMOSPHERIC EMISSIONS OF A RADIOPHARMACEUTICAL' S PRODUCTION UNIT.....	4585
<i>Gessilane Maria Siqueira, Alberto Avellar Barreto, Paulo G. M. Maletta, Thais A. N. Alves</i>	
COMPARATIVE RESPONSE TIME AND FAULT LOGGING WITH A PLC AND SUPERVISORY SOFTWARE AND A STANDALONE UNIT DEVELOPED FOR RECORDING.....	4592
<i>Fabio Eduardo Da Costa, Ricardo Hovacker Baldaconi</i>	
CONSTRUCTIONAL REQUIREMENTS AND CLASSIFICATION OF NUCLEONIC GAUGES	4597
<i>Joana D'Arc R. L. Gomes, Evaldo L. C. Costa, Gustavo H. F. Caldas, Mara Lucia L. Costa, Rogerio S. Gomes, Zieli D. Thome</i>	
DEVELOPMENT OF AN AUTOMATED SYSTEM FOR THE OPERATION OF AN ELECTROM BEAM ACELLERATOR	4603
<i>Samir L. Somessari, Joao A. Moura, Wilson A. P. Calvo</i>	

RADIOACTIVE SEALED SOURCE PRODUCTION PROCESS FOR INDUSTRIAL RADIOGRAPHY	4611
<i>Paulo De S. Santos, Daniel M. G. Ngunga, Julio R. Camara, Pablo A. S. Vasquez</i>	
RADIOLOGICAL PROTECTION IN THE USE OF RADIOTRACERS IN INDUSTRIAL PROCESS.....	4618
<i>Mara Lucia L. Costa, Evaldo L. C. Costa, Joana D'Arc R. L. Gomes, Rogerio S. Gomes, Zieli D. Thome</i>	
TECHNOLOGY OF GEOGRAPHICAL INFORMATION SYSTEMS APPLIED TO THE LICENSING OF NUCLEAR SECTOR INSTALLATIONS.....	4623
<i>Aline F. G. Oliveira, Alberto A Barreto, Carlos A Carvalho Filho, Igor F. S Moura, Paulo C. H Rodrigues</i>	
THE REGULATORY CONTROL OVER RADIATION SOURCES: THE BRAZILIAN EXPERIENCE AND SOME LESSONS LEARNED FROM INDUSTRIAL APPLICATIONS	4631
<i>Evaldo L. C. Costa, Joana D'Arc R. L. Gomes, Mara Lucia L. Costa, Rogerio S. Gomes, Zieli D. Thome</i>	
UPGRADING SAFETY SYSTEMS OF INDUSTRIAL IRRADIATION FACILITIES.....	4643
<i>Rogério Dos Santos Gomes, Evaldo L. C. Costa, Joana D'Arc R. L. Gomes, Mara Lucia L. Costa, Zieli D. Thome</i>	
 <u>E14 CULTURAL HERITAGE</u>	
ANALYSIS OF BLACK JAPANNED FURNITURE BY XRF	4651
<i>Renato P Freitas, Ana L. C. Oliveira, Cristiano S. Carvalho, Fabricio L. Silva, Marcelo O. Pereira, Valter De S. Felix</i>	
ANALYSIS OF GOLD COINS OF THE XIX CENTURY BY PORTABLE XRF	4661
<i>Marcelo O Pereira, Paula De Jesus Moura Aranha, Pedro Colares Da Silva Heringer, Renato Pereira De Freitas, Valter De Souza Felix</i>	
APPLICATION OF GAMMA RADIATION FOR RECOVERY OF PAPERS INFECTED BY FUNGI: CASE STUDY ABOUT SAO LUIZ DO PARAITINGA.....	4667
<i>Luci Diva Brocardo Machado, Fernanda Mokdessi Auada, Marcelo Augusto Goncalves Bardi</i>	
CHEMICAL CHARACTERIZATION OF ANCIENT POTTERY FROM THE SOUTH-WEST AMAZONIA USING NEUTRON ACTIVATION ANALYSIS	4675
<i>Patricia R. Carvalho, Carlos A. Zimpel, Casimiro S. Munita, Eduardo G. Neves</i>	
EVALUATION OF THE GOLD LEAF THICKNESS IN THE COATING OF THE IMPERIAL HORSE-DRAWN CARRIAGE EMPEROR D. PEDRO II.....	4685
<i>Raysa Costa Nardes, Davi F. Oliveira, Eliane M. Zanatta, Francis A. C. R. A. Sanches, Hamilton S. Gama Filho, Joaquim T. Assis, Marcelino J. Anjos, Maria L. Carvalho, Ramon S. Santos, Ricardo T. Lopes, Roberto Cesareo</i>	
PRESERVATION OF PHOTOGRAPHIC AND CINEMATOGRAPHIC FILMS BY GAMMA RADIATION- PRELIMINARY ANALYSES.....	4697
<i>Maria Luiza E. Nagai, Larissa Otubo, Maria Jose A. Oliveira, Pablo A. S. Vasquez, Paulo S. Santos</i>	
RADIOSTERILIZATION OF HISTORICAL DOCUMENTS: THE POTENTIAL EFFECTS OF GAMMA IRRADIATION ON PAPER AND PRINTING INKS.....	4716
<i>Anderson G Jesus, Cesar M. Salgado, Luis E. B. Brandao</i>	

VALIDITY STUDIES AMONG HIERARCHICAL METHODS OF CLUSTER ANALYSIS USING COPHENETIC CORRELATION COEFFICIENT	4726
<i>Priscilla R. Carvalho, Andre L. Lapolli, Casimiro S. Munita</i>	

V ENIN

I01 INTEGRATED MANAGEMENT SYSTEMS

ASSESSING THE MANAGEMENT SYSTEM TO DEMONSTRATE THE SAFE OF TRANSPORT OF RADIOACTIVE MATERIAL	4736
<i>Patricia M. Mattar, Andre T. Pontes, Natanael C. Bruno</i>	

SURVEY OF LEGAL ASPECTS, REGULATIONS, STANDARDS AND GUIDELINES APPLICABLE TO RADIOACTIVE WASTE MANAGEMENT OF THE MULTIPURPOSE BRAZILIAN REACTOR.....	4750
<i>Tereza C Salvetti, Julio Takehiro Marumo</i>	

I02 ENERGY SOURCES SUSTAINABILITY ASSESSMENT

COMPARISON OF THE PERFORMANCE, ADVANTAGES AND DISADVANTAGES OF NUCLEAR POWER GENERATION COMPARED TO OTHER CLEAN SOURCES OF ELECTRICITY	4763
<i>Jonatas F. C. Mata, Amir Z. Mesquita, Rieder O. Neto</i>	

I03 KNOWLEDGE MANAGEMENT AND PERSONNEL QUALIFICATION

MAPPING DATA THROUGH CONCEPT MAPS: AN AUXILIARY TOOL FOR DECISION MAKING REGARDING INSTITUTIONAL PROJECTS.....	4771
<i>Adriana L. D'Avila</i>	

SOFT SYSTEMS METHODOLOGY AS A SYSTEMIC APPROACH TO NUCLEAR SAFETY MANAGEMENT	4778
<i>Antonio S. Vieira Neto, Gerson A. Rubin, Iara M. C. Camargo, Jose S. Caldeira Filho, Sabine N. Guilhen</i>	

STRATEGIC PLANNING AS A COMPETITIVE DIFFERENTIAL: A CASE STUDY OF THE SEALED SOURCES PRODUCTION LABORATORY	4790
<i>Imario Vieira, Fernando Codeo Nascimento, Wilson Aparecido Parejo Calvo</i>	

STUDY OF THE APPLICATION OF VIRTUAL REALITY IN PROGRAMSTRAINING ON NUCLEAR TECHNOLOGY	4805
<i>Valeria Da F E S Pastura, Ana Paula Legey, Antonio Carlos A. Mol</i>	

I04 SOCIAL RESPONSIBILITY

SUSTAINABILITY MANAGEMENT FOR OPERATING ORGANIZATIONS OF RESEARCH REACTORS.....	4816
<i>Eduardo Kibrit, Afonso R. Aquino</i>	

THE ENVIRONMENTAL EDUCATION PROGRAM IN THE CONTEXT OF THE CORPORATIVE SOCIAL RESPONSIBILITY: A CASE STUDY OF THE NUCLEAR FUEL FACTORY (FCN) IN RESENDE/RJ.....	4831
<i>Ana Cristina Lourenco Da Silva, Adriana De A. A. Ribeiro, Flavia Cristina De A. C. Pires</i>	

I06 NUCLEAR POWER GENERATION SYSTEMS

DEFINITION OF PARAMETERS OF A TEST SECTION FOR NATURAL CONVECTION ANALYSIS AND COOLANT LOSS IN THE AP1000 NUCLEAR REACTOR BY SIMILARITY LAWS AND FRACTIONAL SCALE ANALYSIS.....	4839
<i>Luis Felipe Serra Cadiz, Carlos Alberto Brayner De Oliveira Lyra, Fernando Roberto Andrade Lima, Mario Augusto Bezerra Da Silva</i>	
ENVIRONMENTAL QUALIFICATION PROGRAM OF ELECTRIC EQUIPMENT FOR ANGRA 1.....	4848
<i>Marcos C Silva, Grazielle F Muzitano, Marcelo C Justino</i>	
THE GD-ISOTOPIC FUEL FOR HIGH BURNUP IN PWR'S	4858
<i>Marcio S. Dias, Edison P. Andrade, Joao Roberto L. De Mattos</i>	
THE ROLE OF THE SMALL MODULAR REACTORS FOR ISOLATED ELECTRIC SYSTEMS IN BRAZIL	4871
<i>Joao Roberto Loureiro De Mattos, Marcio Soares Dias</i>	

I07 FUEL CYCLE MANAGEMENT AND SERVICES

CARACTERIZATION OF TITANITE GENERATIONS FROM GAMELEIRA-I DEPOSIT (U-ANOMALY 35) LAGOA REAL URANIUM PROVINCE (LRUP), BAHIA STATE.....	4880
<i>Camila M Santos, Francisco Javier Rios F J R Rios, Helena Palmieri, Lucas Eustaquio Dias Amorim L E D A Amorim</i>	
CONCEPTUAL ASPECTS OF THE SAFETY EVALUATION OF A PROJECT OF COMPLEMENTARY SPENT NUCLEAR FUEL DRY STORAGE UNIT	4892
<i>Pedro Luiz Da Cruz Saladanha, Gladson S Fontes, Rafaela Da S. A Freitas</i>	
MODELING OF A LWR OPEN FUEL CYCLE USING THE MESSAGE CODE.....	4902
<i>Antonella L Costa, Cláudia Pereira, Fidelis B. G. L. Estanislau, Raoni A. S. Jonusan</i>	
SAFETY ASPECTS IN THE DRY STORAGE OF SPENT NUCLEAR FUEL IN LONG TERM OPERATION.	4912
<i>Pedro Luiz Da Cruz Saladanha, Claudir Jose Nodari, Gladson S. Fontes, Viviane Borges Da Silva</i>	
STUDY AND PROJECT OF THE NEW RACK WITH BORON FOR STORAGE OF FUEL ELEMENTS BURNED IN THE IEA-R1 RESEARCH REACTOR	4921
<i>Antonio Carlos I. Rodrigues, Davilson G. Silva, Tufic Madi Filho</i>	
USE OF PROJECT MANAGEMENT APPROACH FOR PLANNING OF DECOMMISSIONING ACTIVITIES OF A URANIUM MINE SITE.....	4927
<i>Saulo F. Q. Ribeiro, Danielle E Gomes, Iukio Ogawa, Ricardo F Lage</i>	

I08 COMMUNICATIONS AND PUBLIC ACCEPTANCE OF NUCLEAR ENERGY

COMMUNICATION CHALLENGES IN THE PERSPECTIVE OF NUCLEAR ORGANIZATIONS IN BRAZIL	4943
<i>Tariana Brocardo Machado</i>	

DEMYSTIFYING NUCLEAR POWER: THE LINEAR NON-THRESHOLD MODEL AND ITS
USE FOR EVALUATING RADIATION EFFECTS ON LIVING ORGANISMS 4953
*Alexandre Ferreira Ramos, Miguel F. S. Vasconcelos, Sophia M. C. Vergueiro, Suzylaine S.
Lima*

NEUROSCIENCE APPLIED TO NUCLEAR ENERGY TEACHING 4961
Roberta De C. Barabas, Gaiane Sabundjian

109 OPERATIONAL ASPECTS, COSTS AND CAPACITY FACTORS IN THE NUCLEAR GENERATION OF LARGE UTILITIES

COMPARATIVE ANALYSIS OF COSTS FOR THE GENERATION OF ELECTRICAL
ENERGY IN BRAZIL USING THE SCREENING CURVE 4970
Thaisa C Barros, Aline Xavier, Gabriela Goncalves, Julio Angelo Melo, Lazara Castrillo

LIFETIME MANAGEMENT PROGRAMS AS A BASIS FOR THE LONG TERM OPERATION
OF NUCLEAR INSTALLATIONS 4985
Carlos Lobato Galeote, Manuel Lopez Gonzalez

SPECIFICATION AND QUALIFICATION OF FIRE DETECTORS USED IN VERY HIGH
RADIATION ROOMS AT THE ANGRA 2 NUCLEAR POWER PLANT 4992
*Luis Gustavo Sa, Alisson Santos De Oliveira, Fernando Da Silva Donorato, Marcos Vinicius
Mateus Oliveira*

111 NUCLEAR SECURITY, NON PROLIFERATION, SAFEGUARDS AND NUCLEAR FORENSICS

A NEW BRAZILIAN REGULATION FOR THE SECURITY OF NUCLEAR MATERIAL AND
NUCLEAR FACILITIES 5000
*Renato L. A Tavares, Alexandre R. De Lima, Fabiano P. C. Lima, Joselio S. Monteiro Filho,
Luiz F. B. Torres*

A PERFORMANCE-BASED APPROACH TO DESIGN AND EVALUATION OF NUCLEAR
SECURITY SYSTEMS FOR BRAZILIAN NUCLEAR FACILITIES 5009
Renato L. A. Tavares, Gladson S. Fontes, Joao C. B. Fiel, Joselio S. Monteiro Filho

GLOBAL SECURITY AND IMPACTS ON NUCLEAR MATTERS: NUCLEAR SECURITY
SUMMIT 2016 5017
Martonio Mont'Alverne Barreto Lima, Midred Cavancante Barreto

OPERATIONAL PROCEDURE STANDARD FOR OCCURRENCES INVOLVING
RADIOACTIVE MATERIALS 5034
Leonardo Piekarz, Christiano J. G Pinheiro, Talita C. Rezende

POLICY IMPLICATIONS OF IRAN'S NUCLEAR DEAL IN TECHNICAL TERMS FOR THE
PLUTONIUM ROUTE, URANIUM ROUTE, COVERT OPTIONS, INSPECTIONS,
MONITORING AND VERIFICATIONS 5048
Andre Ricardo Mendonca Pinheiro, Leonam Guimaraes

PRELIMINARY ANALYSIS OF ACCIDENTS OF THE SANTA QUITÉRIA PROJECT:
OCCUPATIONALLY EXPOSED INDIVIDUALS 5064
Gullit D. C. Anjos

I12 NUCLEAR INDUSTRY SECTORS WHICH DO NOT ADHERE TO ANY OF THE ABOVE

EVALUATION OF THE IMPROVEMENT SUGGESTION SYSTEM IN A NUCLEAR FACILITY	5073
<i>Joao P. R. Carnaval, Geice A. Moraes</i>	
GLOBAL POWER AND BRAZILIAN NUCLEAR DECISIONS	5082
<i>Paulo C S Metri</i>	
THE IMPLEMENTATION OF ISO 17025 IN THE ELETRONUCLEAR ENVIRONMENTAL MONITORING LABORATORY	5089
<i>Ana Rosa Baliza Maia, Carla B. Caetano</i>	

JR. POSTER

R01 NUCLEAR REACTOR PHYSICS (JR POSTER)

COMPARAÇÃO DE PARÂMETROS NEUTRONICO ENTRE UM REATOR CANDU E UM ACR.....	5098
<i>Gabriel H. P. Dias, Clarysson A. M. Silva, Claubia Pereira</i>	
EXPERIMENTAL ESTIMATION OF MODERATOR TEMPERATURE COEFFICIENT OF REACTIVITY OF THE IPEN/MB-01 REACTOR	5108
<i>Rubens C. Da Silva, Luiz Ernesto C. Mura, Ulysses D'U Bitelli</i>	
VALIDAÇÃO DAS PRINCIPAIS BIBLIOTECAS NUCLEARES UTILIZADAS EM REATORES DE TÓRIO COM O CÓDIGO SERPENT	5121
<i>Lucas J. Faga, Giovanni L. De Stefani, Thiago A. Dos Santos</i>	

R02 NUCLEAR REACTOR THERMAL HYDRAULICS (JR POSTER)

DEFINITION OF THERMAL-HYDRAULICS PARAMETERS OF A NAVAL PWR VIA ENERGY BALANCE OF A WESTINGHOUSE PWR	5135
<i>Luiz C. C. Oliveira, Marcos F Curi</i>	
ESTUDO DO SISTEMA PASSIVO DE REMOÇÃO DE CALOR RESIDUAL DE UM REATOR PWR PEQUENO MODULAR.....	5148
<i>Nathalia N Araujo, Jian Su, Jose Luiz Horacio Faccini</i>	
INVESTIGAÇÃO DE PROPRIEDADES TERMOFISICAS DE NANOFUIDOS	5157
<i>Tiago A. S. Vieira, Andre A Campagnole Dos Santos, Geraldo E. Silva Junior, Gleydson A Macedo, Guilherme A. M. Vidal</i>	
MEDIÇÃO DE NIVEL DE LIQUIDO EM UM CIRCUITO DE CIRCULAÇÃO NATURAL UTILIZANDO UMA TÉCNICA ULTRASSONICA	5171
<i>Amanda C. Barbosa, Jose L. H. Faccini, Su Jian</i>	
THERMAL HYDRAULIC SIMULATION OF THE CANDU NUCLEAR REACTOR	5181
<i>Athos M. S. S. Carvalho, Antonella L. Costa, Gustavo H. N. Fernandes, Mario C. Ramos</i>	

R03 APPLIED MATHEMATICS AND COMPUTATION (JR POSTER)

A SIMULATION OF LASER ENERGY ABSORPTION BY NANOWIRED SURFACE..... 5190
Miguel F. S. Vasconcelos, Alexandre F. Ramos

CÁLCULOS DE BLINDAGEM DE NEUTRONS USANDO UM MODELO UNIDIMENSIONAL DE TRANSPORTE NA FORMULAÇÃO DE ORDENADAS DISCRETAS COM ESPALHAMENTO LINEARMENTE ANISOTRÓPICO E UMA VELOCIDADE 5204
Rafael B Libotte, Amaury Munoz Oliva, Hermes Alves Filho

VOLUME 8

SOLUÇÕES NUMÉRICAS DE UM SISTEMA DE EDO'S PARA NEUTRONICA..... 5214
Suzylaine Lima, Alexandre Ramos

R04 ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY (JR POSTER)

BUSCA CUCO COM VOO DE LÉVY APLICADO AO PROBLEMA DE RECARGA DE COMBUSTÍVEIS EM REATORES NUCLEARES..... 5225
Patrick V. Silva, Anderson A. M. Meneses, Fernando N. Nast, Roberto Schirru

DEVELOPMENT OF A MOBILE GAME BASED ON VIRTUAL REALITY TOOLS TO SENSITIZE THE POPULATION ABOUT THE NUCLEAR POWER PLANT'S EMERGENCY PLAN. 5236
Lucas H. H. Ferreira, Ana P. Legey, Andre C. Do E. Santo, Antonio Carlos De A. Mol

ESCAPE ROUTE SIMULATOR UTILIZING AUGMENTED REALITY 5244
Karen S. R. Mattos, Andre Cotelli Do Espirito Santo, Antonio Carlos De Abreu Mol, Marcio Henrique Silva

EXPERT SYSTEM APPLIED AT THE ANGRA II NUCLEAR POWER PLANT TO ASSIST IN THE RESOLUTION OF LIMITING CONDITIONS FOR OPERATION..... 5252
Andre D Schechter, Andressa S Nicolau, Roberto Schirru

FIELD DOSE RADIATION DETERMINATION BY ACTIVE LEARNING WITH GAUSSIAN PROCESS FOR AUTONOMOUS ROBOT GUIDING 5261
Danilo De Freitas Naiff, Claudio M. N. A. Pereira, Paulo R. Silveira

THE USE OF THE VIRTUAL REALITY HELMET SAMSUNG GEAR VR AS INTERACTION INTERFACE OF A RADIOACTIVE WASTE REPOSITORY SIMULATOR..... 5272
Julio A. Santos, Andre C. Do E. Santo, Antonio Carlos De A. Mol

UTILIZAÇÃO DO CÓDIGO GRAY NO ALGORITMO PBIL PARA APLICAÇÃO NA RECARGA DE COMBUSTÍVEIS NUCLEARES..... 5280
Fernando Nogueira Nast, Anderson A. M. Meneses, Patrick V. Silva, Roberto Schirru

R05 NUCLEAR REACTOR FUEL FABRICATION AND DESIGN (JR POSTER)

COMPARAÇÃO DE CICLOS ABERTOS DE URÂNIO E ÓXIDOS MISTOS DE TÓRIO-URÂNIO UTILIZANDO REATORES AVANÇADOS 5292
Leticia C. Goncalves, Jose R Maiorino

R06 ADVANCED NUCLEAR REACTORS (JR POSTER)

- SISTEMA DE VISUALIZAÇÃO DE ESCOAMENTO PARA TURBINAS SEM LÂMINAS
APLICADA A MICRORREACTORES..... 5299
Gabriela S. B. Santos, Guilherme M. Placco, Lamartine N. F. Guimaraes
- USE OF THORIUM FOR HIGH TEMPERATURE GAS-COOLED REACTORS 5308
Claudio Q. Guimaraes, Giovanni L. De Stefani, Thiago A. Dos Santos

R09 COMPUTATIONAL FLUID DYNAMICS (JR POSTER)

- ANÁLISE DO ESCOAMENTO DE CO₂ SUPERCRÍTICO NO SUBCANAL DE UM MMR
USANDO TÉCNICAS DE CFD..... 5318
Carolina S. B. Dutra, Felipe P. Ribeiro, Jian Su
- ESTUDO NUMÉRICO DO ENSAIO TÉRMICO DE UM CASCO DE TRANSPORTE PARA
MATERIAL RADIOATIVO 5332
Tiago A. S. Vieira, Andre A. Campagnole Santos, Geraldo E. Silva Junior, Guilherme A. M. Vidal
- INVESTIGAÇÃO NUMÉRICA DO ESCOAMENTO DE ÁGUA ATRAVÉS DE GRADES
ESPAÇADORAS DE ELEMENTOS COMBUSTÍVEIS NUCLEARES UTILIZANDO O
CÓDIGO OPENFOAM..... 5345
Guilherme A. M. Vidal, Andre A. C. Santos, Higor F. P. Castro, Jose A. Barros Filho, Tiago A. S. Vieira, Vitor V. A. Silva

R10 MAN MACHINE INTERFACE (JR POSTER)

- DESENVOLVIMENTO DA INTERFACE PARA USUÁRIO DO SISTEMA DIGITAL DE
SIMULAÇÃO DOS PARÂMETROS OPERACIONAIS DO REATOR NUCLEAR DE
PESQUISA TRIGA IPR-RI 5354
Adriano A M Felipe, Aldo M. F. Lage, Amir Z. Mesquita

R13 NUCLEAR POWER PLANT VIABILITY, DESIGN, CONSTRUCTION AND OPERATION (JR POSTER)

- A GENERAL OVERVIEW OF GENERATION IV MOLTEN SALT REACTOR (MSR) AND
THE USE OF THORIUM AS FUEL 5362
Carlos H. Yamaguchi, Giovanni L. Stephani, Thiago A. Santos

R14 ENVIRONMENTAL IMPACT APPLIED TO NUCLEAR REACTORS AND FUEL CYCLE (JR POSTER)

- A REVIEW ABOUT THE USE OF TH/PU FUEL IN PWR 5372
Andre Luiz P. P. Dos Santos, Giovanni L. De Stefani, Thiago A. Dos Santos

E01 RADIATION PROTECTION (JR POSTER)

- CARACTERIZAÇÃO DE CAMPOS DE NEUTRONS TÉRMICOS PARA A CALIBRAÇÃO DE MONITORES DE NEUTRONS EM TERMOS DA GRANDEZA EQUIVALENTE DE DOSE AMBIENTE H*(10)..... 5378
Larissa Paizante Santos Da Silva, Achilles Astuto, Evaldo S Da Fonseca, Fellipe Souza Da Silva, Karla Cristina S. Patrao, Walsan W Pereira
- CONTROLE DE ÁREAS DE UM SERVIÇO DE MEDICINA NUCLEAR 5383
Islane Siqueira, Aldo Jose Alves Barbosa, Claudio Lucindo Rodrigues Junior, Ferdinand De Jesus Lopes Filho, Fernando Roberto De Andrade Lima, Francisca Melo, Iasmim Marcela Siqueira Da Silva, Jose Wilson Vieira, Kethyllem Mayara De Lima Gonzalez
- INFLUENCIA DA VARIAÇÃO DO ASIR (ADAPTATIVE STATISTICAL ITERATIVE RECONSTRUCTION) NO RUIDO DA IMAGEM DE TOMOGRAFIA COMPUTADORIZADA PARA ALTAS TENSÕES 5388
Lucas M. M Mendes, Carolina S. Lamounier, Diogo A. Goncalves, Guilherme N. P. Carvalho, Jocelio G. Vieira, Lucas P. Reis, Paulo M. C. Oliveira, Priscila C. Santana, Walessa B. R. Pereira
- INFLUENCIA DO ASIR NO RUIDO DAS IMAGENS DE TOMOGRAFIA COMPUTADORIZADA PARA BAIXAS TENSÕES 5397
Walessa B. R. Pereira, Carolina S. Lamounier, Diogo A. Goncalves, Guilherme N. P. Carvalho, Jocelio G. Vieira, Lucas P. Reis, Lucas M. M. Mendes, Paulo M. C. Oliveira, Priscila C. Santana
- JULIA: SOFTWARE DE PROJEÇÃO DE CÁLCULOS PARA BLINDAGEM DE BARREIRAS PRIMÁRIAS À RAIOS-X USANDO BARITA 5406
Julia R. A. Santana Da Silva, Fernando R. A. Lima, Jose W. Vieira
- REASSESSMENT OF SHIELDING CALCULATIONS FOR A ROOM HOUSING A CESIUM 137 IRRADIATOR 5412
Leticia S. Oliveira, Ana Claudia B Rezende, Rugles C. Barbosa

E02 DOSIMETRY (JR POSTER)

- ANISOTROPIA DE FONTES DE NEUTRONS DO LABORATÓRIO DE METROLOGIA DE NEUTRONS..... 5419
Alexander C. F Da Silva, Evaldo S. Da Fonseca, Fellipe S. Silva, Karla Cristina S. Patrao, Prycylla G Creazolla, Sandro P. Leite, Simone S. Fernandes, Walsan W. Pereira
- CALIBRAÇÃO DE DETECTORES DO TIPO CR-39 PARA A DETERMINAÇÃO DE RADONIO-222 NO CRCN-NE 5428
Karolayne Silva, Clovis A. Hazin, Derec S. Amaral, Elvis J. Franca, Emerson E. G. Farias, Eudice C. Vilela, Mariana L. O. Santos
- COMPARAÇÃO ENTRE PARÂMETROS DE QUALIDADE DE IMAGEM UTILIZANDO A FIGURA DE MÉRITO 5434
Isabela Soares Morais, Carolina Vilorio, Maria S. Nogueira Tavares, Peterson L. Squair
- VALIDAÇÃO DO MODELO COMPUTACIONAL ALDERSON/EGSNRC PARA RADIOGRAFIAS DE TÓRAX 5441
Bianca C. Muniz, Andre L. Dos Santos, Claudio J. M. Menezes

E03 NUCLEAR ANALYTICAL TECHNIQUES (JR POSTER)

- ANALISE DA COMPOSIÇÃO ELEMENTAR DE FITOTERÁPICOS ESPINHEIRA SANTA E BERINJELA PELO MÉTODO DE ANÁLISE POR ATIVAÇÃO COM NEUTRONS..... 5448
Luan M. Pereira, Mitiko Saiki
- CARACTERIZAÇÃO DE ELEMENTOS QUÍMICOS DE FRUTOS DE LEUCAENA LEUCOCEPHALA EM ÁREAS RIBEIRINHAS DA BACIA DO RIO PIRACICABA, SAO PAULO, BRASIL 5458
Bruno Fonseca Da Silva, Elisabete A. De Nadai Fernandes, Elvis J. D. Franca, Fabiano D. S. Ferreira, Isabel P. O. Cavalca, Marcelo D. R. L. De Magalhaes, Vanessa S. Rodrigues
- CARACTERIZAÇÃO QUÍMICA DE GASTRÓPODES TERRESTRES DE MANGUEZAIS BRASILEIROS POR EDXRF..... 5468
Bruno F. Silva, Alberto P. Neto, Ana M. M. A. Melo, Elvis J. Franca, Julyanne T. B. Melo
- CARACTERIZAÇÃO QUÍMICA E RADIOLÓGICA DO DEPÓSITO DE ARGILA CONHECIDO COMO LAMA NEGRA DE PERUIBE 5476
Isis C Alves, Paulo F. M. Gouvea, Paulo S. C. Silva
- CONTROLE DE QUALIDADE DAS ANÁLISES DE ATIVIDADES ALFA E BETA TOTAL EM ÁGUA PELA TÉCNICA DO CONTADOR PROPORCIONAL DE FLUXO GASOSO 5488
Alberto P. Neto, Crescencio A. Silva Filho, Elvis J. Franca, Emerson E. G. Farias, Thiago O. Santos, Thiago M. Da R. Bastos
- PROGRAMA NACIONAL DE INTERCOMPARAÇÃO APLICADO A ANÁLISES DE RADIONUCLÍDEOS EM ÁGUA NO SEAMB – CRCN/NE..... 5494
Alberto P. Neto, Crescencio A. Silva Filho, Elvis J. Franca, Emerson E. G. Farias, Thiago O. Santos, Thiago M. Da R. Bastos
- DETERMINAÇÃO DA COMPOSIÇÃO ELEMENTAR DE PLANTAS MEDICINAIS PELO MÉTODO DE ANÁLISE POR ATIVAÇÃO COM NEUTRONS 5502
Arisa Takamoto, Mitiko Saiki
- ELEMENTOS QUÍMICOS EM FOLHAS DE LEUCAENA LEUCOCEPHALA DE ZONAS RIPÁRIAS DO MUNICÍPIO DE PIRACICABA, SAO PAULO, BRASIL..... 5511
Marcelo Belmiro Gomes De Lira, Elisabete A. De Nadai Fernandes, Elvis Joacir De Franca, Fabiano Ferreira, Isabel P. O. Cavalca, Leandro Camilli, Vanessa S. Rodrigues
- ELEMENTOS QUÍMICOS EM SOLOS DE ÁREAS RIBEIRINHAS DA BACIA HIDROGRÁFICA DO RIO PIRACICABA, SAO PAULO, BRASIL 5521
Marcelo Belmiro Gomes De Lira, Elisabete A. De Nadai Fernandes, Elvis J. Franca, Felipe Y. Fonseca, Isabel P. O. Cavalca, Jose Daniel S. Paiva, Vanessa S. Rodrigues
- ESTUDO DA COMPOSIÇÃO ELEMENTAR DE MELISSA OFFICINALIS DE DIFERENTES PROCEDÊNCIAS POR ANÁLISE POR ATIVAÇÃO NEUTRÔNICA 5531
Allan Santos, Fabio Vitorio Sussa, Paulo Sergio Cardoso Da Silva
- REPRODUCIBILITY OF THE NEW AUTOMATIC SAMPLE CHANGER COUPLED TO THE GAMMA SPECTROMETRY SUPPORTING THE NEUTRON ACTIVATION ANALYSIS..... 5542
Raoni R. V. Venancio, Aimore Dutra Neto, Maria Angela B. C. Menezes

E04 ENVIRONMENTAL SCIENCES (JR POSTER)

- AVALIAÇÃO DA DISTRIBUIÇÃO DE ELEMENTOS TERRAS RARAS EM SEDIMENTOS FLUVIAIS, ROCHAS E REJEITOS CORRELACIONÁVEIS À UNIDADE DE TRATAMENTO DE MINÉRIO DE CALDAS (UTM-CALDAS), ESTADO DE MINAS GERAIS, BRASIL..... 5553
Clara Ramos Possas, Carlos Alberto De Carvalho Filho, Maria Angela De Barros Correia Menezes, Rodrigo R Moura
- AVALIAÇÃO DAS CONCENTRAÇÕES DE ELEMENTOS TERRAS RARAS, METAIS E TRAÇO EM SEDIMENTOS DO RESERVATÓRIO GRAMINHA, ESTADO DE SAO PAULO, PELA TÉCNICA DE ATIVAÇÃO NEUTRÔNICA. 5564
Lucas Stano Junqueira, Deborah Ines Teixeira Favaro, Sharlley Alves Silva
- AVALIAÇÃO E DISTRIBUIÇÃO DE METAIS, ELEMENTOS TRAÇO E TERRAS RARAS EM PERFIS DE SEDIMENTOS DO RESERVATÓRIO DE PROMISSAO, ESTADO DE SAO PAULO, POR INAA 5581
Matheus Angelini, Deborah I. T. Favaro, Flavio R. Rocha, Robson L. Franklin
- CARACTERIZAÇÃO DE SEDIMENTOS EM ÁREA DE RECREAÇÃO DE CRIANÇAS E ADOLESCENTES 5599
Barbara E. S. Melo, Vivianne L. B. Souza
- CONCENTRAÇÃO DE TÓRIO E URÂNIO NO ECOSISTEMA DE MATA ATLÂNTICA DO ESTADO DE PERNAMBUCO 5611
Waldecy A. Silva, Ebenezer M. Souza, Elvis J. Franca, Fabiano S. Ferreira, Marcelo B. G. Lira
- ESTUDO DA ECOTOXICIDADE AGUDA DO RESVERATROL EM DAPHNIA SIMILIS IRRADIADAS E NÃO IRRADIADAS 5621
Matheus B. O. Ormenio, Jona S. Mazieiro, Jose R. Rogero, Sizue O. Rogero
- MAPEAMENTO E ANÁLISE DA RADIOATIVIDADE NATURAL EM AMBIENTES EXTERNOS NO CENTRO DE DESENVOLVIMENTO DA TECNOLOGIA NUCLEAR 5628
Natalia F. Taveira, Aimore D. Neto, Mayara P. Duarte, Talita O. Santos, Zildete Rocha
- O PAPEL DA ENERGIA NUCLEAR NA MATRIZ ENERGÉTICA BRASILEIRA: ASPECTOS SOCIOECONOMICOS E AMBIENTAIS 5635
Ubiratan Alegransi Bones, Celina Ceolin, Priscila Schirmer

E05 NUCLEAR INSTRUMENTATION (JR POSTER)

- CALIBRAÇÃO DE DETECTORES SSNDT PARA MEDIÇÃO DE RADÔNIO 5650
Laura Cardoso Takahashi, Rose Mary M Pinheiro, Talita O Santos, Zildete Rocha Rocha
- ESTUDO DE ESPECTROS NEUTRÔNICOS COM FONTES DE $^{241}\text{AMBE}$ E $^{238}\text{PUBE}$ MODERADOS EM ÁGUA. 5659
Angela Souza Goncalves, Evaldo S. Da Fonseca, Fellipe S. Da Silva, Karla Cristina S. Patrao, Simone S. Fernandes, Walsan W. Pereira
- POSICIONAMENTO EM AMBIENTES INTERNOS COM DISPOSITIVOS WIFI DE BAIXO CUSTO 5664
Fabricio M. Moreira, Marcos S. Farias, Paulo Victor R. Carvalho

E06 WASTE MANAGEMENT (JR POSTER)

- AN ASSESSMENT OF THE INVENTORY OF URANIUM CONSUMPTION AND HLW PRODUCTION BY THE ANGRA 2 NUCLEAR POWER PLANT USING THE VISTA PROGRAM 5670
Leticia C. Goncalves, Joao M. L. Moreira, Jose R. Maiorino
- ANÁLISE DO COMPORTAMENTO DA MIGRAÇÃO DE RADIONUCLÍDEOS EM MEIO FRATURADO EM DIFERENTES TIPOS DE MATRIZES ROCHOSAS..... 5679
Ludimila S. S. De Sa, Claudia S. Da Silveira , Zelmo R. De Lima
- AUMENTO DA QUANTIDADE DE CONCENTRADO DE EVAPORADOR PROVENIENTE DE USINAS NUCLEARES EM PRODUTOS CIMENTADOS 5689
Bruna S. Costa, Cledola C. O. Tello
- CARACTERIZAÇÃO E ARMAZENAMENTO DE REJEITOS LÍQUIDOS CONTENDO IODO-125 NO LABORATÓRIO DE PRODUÇÃO DE FONTES PARA BRAQUITERAPIA - IPEN..... 5701
Beatriz R Nogueira, Bruna T Rodrigues, Carlos Alberto Zeituni, Daiane Cristini B Souza, Maria Elisa C. M Rostelato, Nayane Ketteryn O Barbosa, Osvaldo Luiz Costa, Roberto Vicente, Vitoria S Carvalho
- ESTUDO DE GERENCIAMENTO DOS REJEITOS RADIOATIVOS SÓLIDOS GERADOS NO LABORATÓRIO DE PRODUÇÃO DE FONTES PARA BRAQUITERAPIA 5710
Nayane Ketteryn De Oliveira Barbosa, Tatyana Spinoza Baptista, Carlos Alberto Zeituni, Daiane Cristini Barbosa Souza, Jose Ronaldo Oliveira Marques, Maria Elisa Chuery Martins Rostelato, Osvaldo Luis Da Costa, Roberto Vicente, Vitoria Santana Carvalho
- OTIMIZAÇÃO DO PROCESSO DE ENCAPSULAMENTO DO PRODUTO BETUMINIZADO 5719
Jarine E C Silva, Cledola C O Tello

E07 ISOTOPIC TECHNIQUES IN ENVIRONMENTAL AND INDUSTRIAL PROCESSES (JR POSTER)

- CULTIVO DA MICROALGA SPIRULINA PLATENSIS MARCADA COM ISÓTOPO ESTÁVEL CARBONO-13 5729
Luiz C A Cronemberger, Vladimir E Costa
- ESTUDO DE MÉTODO DE TRANSFERENCIA DE EFICIENCIA USANDO DETECTORES NAI(TL) 5736
Thiago Lins Ramos, Cesar M Salgado

E08 MEDICINE AND HEALTH (JR POSTER)

- AValiação DE SIMULADOR DE CORPO PARA REGIÕES DO TÓRAX E ABDOMEN EM EQUIPAMENTO DE RAIOS X 5744
Sidney Sena Soares, Adriana Batista De Souza Medeiros , Esther P. Lorryne Machado, Gabriela Pontes Cardoso, Giovanni Antonio Paiva Oliveira
- DETERMINAÇÃO DE IMPUREZAS INORGÂNICAS EM HENNA PARA SOBRANCELHAS PARA APLICAÇÃO COSMÉTICA..... 5751
Thamires Silva Marinheiro, Ana Maria G Figueiredo, Camila N Lange, Regina B Ticianelli, Tatiane A. A. De Jesus

DEVELOPMENT OF BREAST PHANTOM FOR QUALITY ASSESSMENT OF
MAMOGRAPHIC IMAGES 5760
*Jeniffer Miranda Arvelos, Arnalldo Prata Mourao, Fernando Amaral, Margarita Chevalier
Del Rio*

EVALUATION OF DNA BY THE MICRONUCLEUS TEST OF THE SAMPLES ALLIUM
CEPA GERMINATED IN THE PRESENCE OF URANIUM..... 5768
*Ayrton N. Souza, Andressa L. Oliveira , Eliane M. D. Maffei, Roseli F. Gennari, Simara S.
Campos*

NUTRIÇÃO E REGENERAÇÃO TECIDUAL DE LOCAIS IRRADIADOS: UM ESTUDO DE
NUTRIÇÃO CELULAR PARA O LOCAL SUBMETIDO AO TRATAMENTO
RADIOTERÁPICO 5774
Clayton Roberto Vallim Furtunato, Deborah Reis Alvarenga Romano

PREPARAÇÃO E CARACTERIZAÇÃO DE COMPÓSITOS DE GEL DE ULTRASSOM E
SULFATO DE COBRE PARA USO COMO SIMULADOR DE CORPO EM EXAMES DE
RESSONÂNCIA MAGNÉTICA 5785
*Gabriela P. Cardoso, Adriana De Souza Medeiros Batista, Esther Lorryne Machado
Pereira, Rodrigo Modesto Gadelha Gontijo, Sidney Sena Soares*

RADIOACTIVE INDIUM (^{114M}IN) COMPLEXES DERIVED THIOSEMICARBAZONES FOR
DEVELOPMENT OF GLIOMA RADIONUCLIDE THERAPY TOOLS..... 5793
*Thais Salviana Ribeiro, Alexandre Almeida Oliveira, Heloisa Beraldo, Lucas Lopardi
Franco, Luiz Claudio M. Belo, Maria Angela B. C. Menezes, Raquel Gouvea Santos*

E09 FOOD SCIENCE (JR POSTER)

THE EFFECT OF GAMMA RADIATION ON CHIA (SALVIA HISPANICA L.) EDIBLE FILM 5806
Gabriel S. Chierentin, Bruna S. Teixeira, Nelida L. Del Mastro

E10 BIOLOGY (JR POSTER)

EFEITO RADIOPROTETOR DO FLAVONOÍDE QUERCETINA SOBRE CÉLULAS
LINFOCITÁRIAS HUMANAS..... 5811
*Larissa S. A. Melo, Ana M. M. A. Melo, Edvane B. Silva, Maira V. Lima, Ricardo L. C. Luna
Filho, Williams N. Siqueira*

INFLUENCIA DA RADIAÇÃO GAMA SOBRE A AÇÃO MOLUSCICIDA E
ANTIMICROBIANA DA FOLHA E CASCA DO CAULE DE ZIZIPHUS JOAZEIRO 5819
*Larissa S. A. Melo, Ana M. M. A. Melo, Edvane B. Silva, Fabricio O. Mendes, Maira V. Lima,
Maria L. M. Oliveira, Ricardo L. C. Luna Filho, Vinicius H. T. Morais, Williams N. Siqueira*

E12 MATERIALS SCIENCE AND TECHNOLOGY (JR POSTER)

CARACTERIZAÇÃO DE SUPORTES CERÂMICOS DE ÓXIDO DE TITÂNIO PARA
TRATAMENTO DE EFLUENTES DA ÁREA NUCLEAR 5829
Milena Hudson Da Silva, Elizabeth Eugenio De Mello Oliveira

CARACTERIZAÇÃO E ESTUDOS DE TOXICIDADE DE BIOVIDRO PRODUZIDO PELO
MÉTODO SOL-GEL PARA O TRATAMENTO DE CÂNCER DE PRÓSTATA 5834
Gabriela A Veloso, Luciana M. Silva, Tarcisio P. R. Campos, Wanderley S. Roberto

COATINGS OF NANOPARTICLES APPLIED TO BRACHYTHERAPY TREATMENTS	5842
<i>Andreza A. D. C. C. Gonzalez, Beatriz R. Nogueira, Bruna T. Rodrigues, Carla D. Souza, Carlos A. Zeituni, Daiane C. B. Souza, Maria E. C. M. Rostelato</i>	
ESTUDO DA APLICAÇÃO DE NANOFLUIDOS DE SiO ₂ E TiO ₂ EM TRANSFORMADORES ELÉTRICOS A ÓLEO PARA ANÁLISE DE DESEMPENHO DE CONDUTIVIDADE TÉRMICA E RIGIDEZ DIELETRICA	5851
<i>Daniel R Pamio Lopes, Marcelo Da Silva Rocha, Otavio Luis De Oliveira</i>	
INFLUENCIA DA IRRADIAÇÃO GAMA NO ELASTOMERO TERMOPLÁSTICO (TPE).	5861
<i>Camila Bassetti Oliveira, Duclerc Fernandes Parra, Leonardo Guedes Marchini</i>	
IRRADIAÇÃO DA BIOMASSA LIGNOCELULÓSICA DE SEMENTES DE URUCUM (BIXA ORELLANA L.) PARA APLICAÇÕES EM COMPÓSITOS POLIMÉRICOS	5869
<i>Paula Santos Teixeira, Aurea Cerqueira Geraldo, Eduardo De Moura, Thais Neves Fonseca</i>	
STUDY OF BIXIN OXIDATION BY IONIZING IRRADIATION	5884
<i>Thais N. Fonseca, Aurea Beatriz C. Geraldo, Eduardo De Moura, Paula S. Teixeira</i>	
TESTES DE DIFUSÃO DO NÚCLEO DE PROVA ¹¹¹ IN(¹¹¹ CD) NOS COMPOSTOS: LABAMN2O6 E LABACO2O6 “DOUBLE PEROVSKITES” PARA A REALIZAÇÃO DE MEDIÇÕES UTILIZANDO A ESPECTROSCOPIA PAC.....	5898
<i>Natalia Martins Nascimento, Artur W Carbonari, Beatriz A Sciarretta, Brianna Bosch-Santos, Danilo S Sandalo</i>	

I04 SOCIAL RESPONSIBILITY (JR POSTER)

DESMISTIFICAÇÃO DE CONCEITOS EMPIRICOS SOBRE A RADIOATIVIDADE	5907
<i>Claudio Junior L. R., Ferdinand Filho J. L., Fernando R. A. Lima, Islane C. S. Silva, Jose W. Vieira, Jose Filho M. L., Kethyllem M. L. Gonzalez</i>	
NATURAL RADIOACTIVE ANOMALY; SOCIAL IMPACTS IN A SMALL CITY IN THE NORTHEAST OF BRAZIL	5912
<i>Lais Campos Casado, Arykerne Nascimento Casado Da Silva</i>	

I06 NUCLEAR POWER GENERATION SYSTEMS (JR POSTER)

CANDU: STUDY AND REVIEW	5918
<i>Cesar M. Morad, Giovanni L. De Stefani, Thiago A. Dos Santos</i>	
A MIGRAÇÃO DE FLUIDOS COMO FERRAMENTA DE AVALIAÇÃO PARA A VIABILIDADE DA IMPLANTAÇÃO DE REPOSITÓRIOS DE REJEITOS RADIOATIVOS GEOLÓGICOS (RARN) EM ROCHAS GRANITOIDES: TESTES EM GRANITOS SUBMETIDOS A DEFORMAÇÃO NATURAL VS. NÃO DEFORMADOS.....	5930
<i>Pedro Henrique Silva Barbosa, Alanna L. Dos Santos, Francisco J. Rios, Lucas E. D. Amorim, Monica E. Freitas, Nilo Henrique B. Lopes</i>	

I08 COMMUNICATIONS AND PUBLIC ACCEPTANCE OF NUCLEAR ENERGY (JR POSTER)

O PAPEL TRANSFORMADOR DA EDUCAÇÃO NA DIMINUIÇÃO DA PERCEPÇÃO DE RISCO E A IMPLEMENTAÇÃO DO REATOR MULTIPROPÓSITO BRASILEIRO: UM ESTUDO DE CASO	5940
<i>Alex De Almeida Castro, Luciana Aparecida Farias, Rafaella Menezes Ayllon</i>	

I09 OPERATIONAL ASPECTS, COSTS AND CAPACITY FACTORS IN THE NUCLEAR GENERATION OF LARGE UTILITIES (JR POSTER)

AN ANALYSIS OF THE PROPERTIES OF LEVELIZED COST ANALYSIS OF STORAGE OR RECYCLING OF SPENT NUCLEAR FUEL 5954
Sophia Moura De Campos Vergueiro, Alexandre Ferreira Ramos

Author Index