

Fifteenth International Symposium on

15th
ISR/D

REACTOR DOSIMETRY

18TH-23RD MAY 2014

AIX-EN-PROVENCE, FRANCE



PROGRAMME

www.reactordosimetry.org



08:00 - 08:30	REGISTRATION	
08:30 - 10:00	<p>Opening Session & Chairman Introduction <i>Mr. Christian Bonnet, Director of the CEA Cadarache centre</i> <i>Dr. Pierre D'hondt, EWGRD Programme Chairman</i> <i>Mrs. Mary-Helen Sparks, ASTM Symposium Chairma'am</i> <i>Prof. Abdallah Lyoussi, Organizing Committee Chairman</i></p>	
	<p>Keynote presentations The Challenges and Opportunities of the ITER Diagnostics <i>Michael Walsh and the ITER Team</i> <i>Head of Diagnostics for ITER project</i></p>	
	<p>Educating the Nuclear Workforce of the Future in Texas <i>John W. Poston, Sr., R. C. Kurwitz, G. Tsvetkova, and K. L. Peddicord</i> <i>Nuclear Power Institute: Texas A&M University</i></p>	
<p>EWGRD Chair : <i>Pierre D'hondt (SCK•CEN, Belgium)</i> ASTM Chair : <i>Mary-Helen Sparks (White Sands Missile Range, USA)</i></p>		
10:00 - 10:20	COFFEE BREAK	
<p>Oral Session 1 Dosimetry in Research and Test Reactors and in Accelerators</p>		
<p>EWGRD Chair : <i>Abdallah Lyoussi (CEA, France)</i> ASTM Chair : <i>Ed Parma (Sandia National Laboratories, USA)</i></p>		
10:20 - 10:40	E141	<p>Local neutron flux distribution measurements by wire-dosimetry in the AMMON experimental program: "hafnium" configuration <i>J. Di Salvo, A. Gruel, A. Roche, J.-M. Girard, H. Philibert, J. Bonora, J.-F. Ledoux, C. Morel, A. Lecluze, A. Foucras, C. Vaglio-Gaudard, A. C. Colombier</i> CEA, DEN, DER, Cadarache, France</p>
10:40 - 11:00	A137	<p>Highly Perturbed Operational Test Congurations at the WSMR Fast Burst Reactor <i>T. M. Flanders, M. H. Sparks, J. D. Daniel</i> Reactor Physics Branch, TEDT-WSV-NR White Sands Missile Range, NM 88002-5058</p>
11:00 - 11:20	E127	<p>Fast neutron transport in the biological shielding model in the VVER-1000 Mock-Up on the LR-0 Research Reactor <i>Košťál, M.¹, Milcák, J.^{1,2}, Cvachovec, F.³, Jánský, B.¹, Rypar, V.¹, Juríček, V.¹, Sergey Zaritskiy⁴</i> ¹ Research Center Rez ltd., Czech Republic ² CTU in Prague, Faculty of Nuclear Sciences and Physical Engineering, Department of Nuclear Reactors, Czech Republic ³ University of Defence, Czech Republic ⁴ NRC Kurchatov Institute, Russia</p>

MONDAY MAY 19TH

11:20 - 11:40	A105	<p>Characterization of Novel Calorimeters in the Annular Core Research Reactor <i>Brian D. Hehr, Edward J. Parma, Curtis D. Peters, Gerald E. Naranjo S. Michael Luker</i> <i>Sandia National Laboratories, USA</i></p>
12:40 - 14:00	LUNCH BREAK	
<p>Oral Session 2 Reactor Surveillance and Plant Life</p>		
<p>EWGRD Chair : <i>Sergey Zaritsky</i> <i>(National Research Centre “Kurchatov Institute”, Russia)</i> ASTM Chair : <i>Choon Sung Yoo</i> <i>(Korean Atomic Energy Research Institute, South Korea)</i></p>		
14:00 - 14:20	A128	<p>In-vessel and Ex-vessel Neutron Dosimetry Programs in Korea <i>Yoo, Choon Sung¹, Kim, Byoung Chul², Arnold H. Fero³, Stanwood L. Anderson³</i> ¹<i>Korea Atomic Energy Research Institute, Korea</i> ²<i>Korea Reactor Integrity Surveillance Technology, Korea</i> ³<i>Westinghouse Electric Company LLC, USA</i></p>
14:20 - 14:40	E107	<p>Uncertainties in the Fluence Determination in the Surveillance Samples of VVER-440 <i>Konheiser, J., Grahn, A., Helmholtz Zentrum Dresden-Rossendorf (HZDR) Borodkin, P., Borodkin G.,</i> <i>Scientific and Engineering centre for Nuclear and Radiation Safety (SEC NRS), Russia</i></p>
14:40 - 15:00	E119	<p>A History of Dosimetry for the Advanced Gas-cooled Reactors <i>Simon Shaw¹, Geo Whiley¹, Paolo Mason¹ Dean Thornton², Dennis Allen²</i> ¹<i>EDF Energy Nuclear Generation Ltd, Nuclear Technology Branch / Reactor Physics Group, Gloucester, UK</i> ²<i>AMEC, Clean Energy – Europe, Gloucester, UK</i></p>
15:00 - 15:20	A145	<p>Correlating dpa to Fast Fluence in Atypical LWR Applications <i>Thomas H. Drury</i> <i>AREVA Inc., Lynchburg, VA</i></p>
15:20 - 15:40	E148	<p>FLUOLE-2: an Experiment for PWR Pressure Vessel Surveillance <i>N. Thiollay¹, J. Di Salvo¹, C. Sandrin³, M. Soldevila², S. Bourganel², C. Fausser¹, C. Destouches¹, P. Blaise¹, C. Domergue¹, H. Philibert¹ and J. Bonora¹</i> ¹<i>CEA/DEN CEA/Cadarache, France</i> ²<i>CEA/DEN CEA/SACLAY, France</i> ³<i>EDF/SEPTEN France</i></p>
15:40 - 16:00	COFFEE BREAK	

16:00 - 17:20		Poster Session 1 Experimental Techniques
EWGRD Chair : <i>Jan Wagemans</i> (SCK•CEN, Belgium) ASTM Chair : <i>Doug Selby</i> (Oak Ridge National Laboratory, USA)		
Cancelled	A125	An Imaging Neutron/Gamma-Ray Spectrometer <i>James M. Ryan</i> ¹ , <i>Christopher Bancroft</i> ¹ , <i>Peter Bloser</i> ¹ , <i>Dominique Fourquette</i> ² , <i>Liane Larocque</i> ² , <i>Jason Legere</i> ¹ , <i>Amanda Madden</i> ¹ , <i>Mark L. McConnell</i> ¹ , <i>Jane Pavlich</i> ² , <i>Greg Ritter</i> ² , <i>Greg Wassick</i> ² , <i>Marissa Rousseau</i> ¹ ¹ Space Science Center, University of New Hampshire, USA ² Michigan Aerospace Corp., USA
	A132	Modeling, Calibration, and Verification of a Fission Chamber for ACRR Experimenters <i>S.M. Luker</i> , <i>J.D. Coburn</i> , <i>Dr. E.J. Parma</i> , Sandia National Laboratories, USA
	A138	An Investigation of Fitting Methods for Calibration of Photon Irradiated CaF₂:Mn Thermoluminescent Dosimeters <i>J.D. Daniel</i> ¹ and <i>David W. Vehar</i> ² ¹ White Sands Missile Range, WSMR, USA ² Sandia National Laboratories, USA
	A142	The Design of a Fuel Scanning System at the Advanced Test Reactor Canal for Burnup Prediction and Validation Data Collection using a LaBr₃ Scintillator <i>Jorge Navarro</i> ¹ , <i>Terry A. Ring</i> ² and <i>David W Nigg</i> ¹ ¹ Idaho National Laboratory, USA ² Utah Nuclear Engineering Program (UNEP), USA
	A156	Application of CdZnTe Detectors to Radioactivity Analysis for PWR Reactor Coolant System <i>Jeong-In Kim</i> , <i>Seo Kon Kang</i> , <i>Byoung Il Lee</i> Radiation Health Research Institute
Moved to Oral Session 6 Experimental Techniques	E108	4H-SiC Thermal Neutron Detector based on Ion Implantation of Boron <i>F. Issa</i> ^{1,a} , <i>V. Vervisch</i> ^{1,b} , <i>L. Ottaviani</i> ^{1,c} , <i>D. Szalkai</i> ^{2,d} , <i>L. Vermeeren</i> ^{3,e} , <i>A. Lyoussi</i> ^{4,f} , <i>A. Kuznetsov</i> ^{5,g} , <i>M. Lazar</i> ^{6,h} , <i>A. Klix</i> ^{2,i} , <i>O. Palais</i> ^{1,j} , <i>A. Hallen</i> ^{7,k} ¹ IM2NP (UMR CNRS 7334) – Aix-Marseille University, Case 231 -13397 Marseille Cedex 20, France ² KIT-Neutron Laboratory TU Dresden and Reactor Technology Helmholtz-Zentrum, Germany ³ SCK•CEN, Boeretang 200, B-2400 Mol, Belgium ⁴ CEA, DEN, DER, Instrumentation Sensors and Dosimetry Laboratory, Cadarache, F-13108 St-Paul-Lez-Durance, France ⁵ University of Oslo, PO Box 1048 Blindern, NO-0316 Oslo, Norway ⁶ AMPERE (UMR 5005) – INSA de Lyon, 21 Av. Capelle, 69621 Villeurbanne, France ⁷ KTH-ICT, Electrum 229, SE 16440 Kista, Sweden

E120	<p>Improvement of Nuclear Heating Evaluation inside the Core of the OSIRIS Material Testing Reactor <i>A. Péron, F. Malouch, C. M. Diop</i> <i>Alternative Energies and Atomic Energy Commission (CEA), Saclay center, DEN/DANS/DM2S/SERMA, France</i></p>
E121	<p>Neutron-Dosimetric Support Of Experiments Carried Out At Riar's Reactors <i>Ryazanov D.K., Shimansky G.A., Lebedeva E.E., Volskaya L.A.</i> <i>Joint Stock Company «State Scientific Center – Research Institute of Atomic Reactors» (JSC «SSC RIAR»), Russia</i></p>
E128	<p>Digital spectrometric system for characterization of mixed neutron – gamma field in the experimental reactor LR-0 <i>Cvachovec F.¹, Cech M.², Košťál M.³, Matej Z.², Mravec F.², Prenosil V.², Veškrna M.²</i> ¹ <i>University of Defence, Czech Republic</i> ² <i>Masaryk University, Faculty of Informatics, Czech Republic</i> ³ <i>Research Center Rez ltd., Czech Republic</i></p>
E132	<p>Digital Real-Time Multiple Channel Multiple Mode Neutron Flux Estimation FPGA-based Device <i>Mathieu Thevenin,</i> <i>Gwenolé Corre, Romuald Woo, Stéphane Normand</i> <i>CEA, LIST – Atomic Energy Commission (CEA) – France</i> <i>Instrumentation Information and Metrology Department DM2I</i> <i>Sensors and Electronic Architecture Lab</i> <i>Loïc Barbot, Christophe Destouches</i> <i>CEA, DEN, DER</i> <i>Instrumentation, Sensors and Dosimetry Laboratory, France</i></p>
E137	<p>Improving design and performance of ssion chambers <i>S. Bréaud¹, L. Barbot¹, B. Geslot², P. Filliatre¹, D. Fourmentel¹, J-F. Villard¹</i> ¹ <i>CEA, DEN, DER, Instrumentation Sensors and Dosimetry Laboratory, Cadarache, France</i> ² <i>CEA, DEN, DER, Experimental Programs Laboratory, Cadarache, France</i></p>
E149	<p>Improvements on low level activity Gamma measurements and X-ray spectrometry at the CEA-MADERE Measurement Platform <i>V. Sergeyeva, C. Domergue, C. Destouches, J.M. Girard, H. Philibert, J. Bonora, N. Thiollay</i> <i>CEA, DEN, DER, Instrumentation Sensors and Dosimetry Laboratory, Cadarache, France.</i></p>
E150	<p>On the integration of a smart sensor for neutron discrimination in harsh environment <i>S. Ben Krit, W. Rahajandraibe, K. Castellani-Coulié are with Aix-Marseille University, CNRS, IM2NP UMR 7334, 13451 Marseille, FRANCE</i> <i>G. Micolau is with Univeristy of Avignon, UMR 1114 EMMAH (INRA-UAPV), FRANCE</i> <i>A. Lyoussi is with CEA/DEN/DER/SPEX, Laboratoire Dosimétrie Capteurs Instrumentation, Bât. 238, CEA Cadarache, France</i></p>

Dosimetry in Research and Test Reactors and in Accelerators		
A110	Dosimetry in Thermal Neutron Irradiation Facility at BMRR <i>HU J. P¹, Holden N. E.¹, Reciniello R. N¹ (retired).</i> ¹ Brookhaven National Laboratory, USA	
A112	Neutron And Gamma-Ray Environment Characterization Of The Central Cavity In The Annular Core Research Reactor <i>Edward J. Parma, Gerald E. Naranjo, Lance L. Lippert, David W. Vehar</i> Sandia National Laboratories USA	
A118	Neutron Flux Characterization of Irradiation Holes for Irradiation Test at HANARO <i>Seong Woo Yang, Man Soon Cho, Kee Nam Choo, Sang Jun Park</i> Neutron Utilization Technology Division, Korea Atomic Energy Research Institute, Korea	
A121	Characterization of the Annular Core Research Reactor (ACRR) Neutron Radiography System Imaging Plane <i>Krista I. Kaiser, K. Chantel Nowlen, and K. Russell DePriest</i> Sandia National Laboratories, USA.	
A122	Neutron field characterization of the BNCT research facility at the IEA-R1 at IPEN <i>Castro, V. A., Cavalieri, T. A., Siqueira, P. T. D.</i> Nuclear Engineering Center, Nuclear and Energetic Research Institute, IPEN/CNEN-SP, São Paulo, Brazil	
A127	Differential Neutron Energy Spectrum Measurement At The Horizontal Channel No.4 Of The Dalat Reactor <i>Nguyen Canh Hai¹, Vuong Huu Tan², Nguyen Nhi Dien¹, Pham Ngoc Son¹, Tran Tuan Anh¹, Ho Huu Thang¹</i> ¹ Nuclear research Institute, Vietnam ² Vietnam Atomic Energy Institute, Vietnam	
A130	A Re-Evaluation of the Reference Environment at the WSMR Fast Burst Reactor <i>M. H. Sparks & T. M. Flanders</i> White Sands Missile Range, USA	
E109	Neutron activation measurements in MARIA reactor as a benchmark against numerical calculations <i>R. Prokopowicz, Z. Marcinkowska, K. Pytel, K. Andrzejewski, B. Pytel, T. Kulikowska, A. Koziel, A. Boettcher, M. Tarchalski, National Centre for Nuclear Research, Poland</i>	

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	E131	<p>Design Optimization of the Neutron Source IN-6 at Moscow Meson Factory <i>S. Belousov¹, V. Matushko²</i> ¹<i>Institute for Nuclear Research and Nuclear Energy of Bulgarian Academy of Sciences</i> ²<i>Institute for Nuclear Research of Russian academy of Sciences</i></p>
	E139	<p>Validation of a new Design Of TeO₂ Irradiated Target <i>Ellaoui A., Ghamad Y., Ayaz Z.E., Zoubir B.,</i> <i>Radiopharmaceuticals Production Unit / Life Science Application</i> <i>Département, CNESTEN, MOROCCO</i></p>
Cancelled	E157	<p>Measurements of SNAC2 criticality dosimeters placed in different configurations around the PROSPERO reactor and comparison with TRIPOLI-4 calculations <i>Rousseau G.¹, Chambru L.¹, Authier N.¹, Trompier C.²</i> ¹<i>CEA, Centre de Valduc, France</i> ²<i>IRSN, France</i></p>
17:40 - 19:00	ASTM and EWGRD committee meetings	

Oral Session 3 Transport Calculations (Neutron and Gamma-Ray) and Modeling		
EWGRD Chair : <i>Stéphane Bourganel</i> , (CEA, France) ASTM Chair : <i>Joel Kulesza</i> (Westinghouse, USA)		
08:20 - 08:40	A104	The development and V&V of the new Lattice code LATC <i>Li Shuo, Chen Yixue, Yu Hui, Liu Zhiyan, Yan Yuhang</i> State Nuclear Power Software Development Center, China.
08:40 - 09:00	A126	Comparison of Analysis Results between 2D/1D Synthesis and RAPTOR-M3G in the Korea Standard Nuclear Plant(KSNP) <i>Lim, Mi Joung¹, Maeng, Young Jae¹, Arnold H. Fero², Stanwood L. Anderson²</i> ¹ Korea Reactor Integrity Surveillance Technology, Korea ² Westinghouse Electric Company LLC, USA
09:00 - 09:20	A133	Overview of the Consortium for the Advanced Simulation of Light Water Reactors (CASL) <i>Joel A. Kulesza¹, Fausto Franceschini¹, Thomas M. Evans²</i> ¹ Westinghouse Electric Company LLC, USA ² Oak Ridge National Laboratory, USA
09:20 - 09:40	A143	Analysis of dpa Rates in the HFIR Reactor Vessel Using a Hybrid Monte Carlo/Deterministic Method <i>J. M. Risner, E. D. Blakeman (retired)</i> Oak Ridge National Laboratory, USA
09:40 - 10:00	A154	Application of SDM for reactor simulation <i>Nathan Rosko¹, Alireza Haghghat¹, William Walters¹, Ce Yi², Farzad Rahnema², and Saam Yasseri²</i> ¹ Nuclear Engineering Program, Mechanical Engineering Department, Virginia Tech, Arlington, VA ² Nuclear and Radiological Engineering, Georgia Institute of Technology, Atlanta, GA
10:00 - 10:20	E102	Validating the Serpent Model of FiR 1 Triga Mk-II Reactor by Means of Reactor Dosimetry <i>Tuomas Viitanen, Jaakko Leppänen</i> VTT Technical Research Centre of Finland, Finland
10:20 - 10:40	COFFEE BREAK	

TUESDAY MAY 20TH

10:40 - 12:40	WORKSHOPS 1 & 2	
	Dosimetry in Research and Test Reactors and in Accelerators EWGRD Chair : <i>Mladen Mitev (INRNE, Bulgaria)</i> ASTM Chair : <i>David Vehar (Sandia National laboratory, USA)</i> Transport Calculations (Neutron and Gamma-Ray) and Modeling EWGRD Chair : <i>Szabolcs Czifrus (BME, Hungary)</i> ASTM Chair : <i>Igor Remec (Oak Ridge National Laboratory, USA)</i>	
General Workshop: EWGRD Chair : <i>Ravi Mutnuru (NRG Petten, The Netherlands)</i> ASTM Chair : <i>Igor Remec, Oak Ridge National Laboratory, USA)</i>		
12:40 - 13:40	LUNCH BREAK	
Oral session 4 Reactor Surveillance and Plant Life		
EWGRD Chair : <i>Milan Marek (NRI Rez, Czech Republic)</i> ASTM Chair : <i>Lawrence Greenwood (Pacifi Northwest National Laboratory, USA)</i>		
13:40 - 14:00	A129	Characterization of Radiation Fields in Biological Shields of NPPs for Assessing Concrete Degradation <i>Igor Remec, Thomas M. Rosseel</i> <i>Oak Ridge National Laboratory, USA</i>
14:00 - 14:20	E145	Approaches for Accounting and Prediction of Fast Neutron Fluence on VVER Pressure Vessels for Estimation RPV Residual Life-Time in Compliance with Russian Utility's Procedure <i>Borodkin¹, G.I., Borodkin, P.G. and Khrennikov, N.N.</i> ¹ <i>Scientific and Engineering Centre for Nuclear and Radiation Safety (SEC NRS) Moscow, Russia</i> <i>Ryabinin, Yu.A.</i> <i>Rosenergoatom Concern OJSC, Moscow, Russia</i> <i>Adeev, V.</i> <i>Kola NPP, Poliarnie Zori, Russia</i>
14:40 - 15:00	A149	Dosimetry Evaluation of In-Core and Above-Core Zirconium Alloy Samples in a PWR <i>Benjamin W. Amiri¹, John P. Foster², Larry R. Greenwood³</i> ¹ <i>Westinghouse Electric Company LLC, Cranberry Township, USA</i> ² <i>Westinghouse Electric Company LLC, Hopkins, USA</i> ³ <i>Battelle – Pacific Northwest National Laboratory, USA</i>

15:00 - 15:20	E113	<p>Photofission analysis for fissile dosimeters dedicated to reactor pressure vessel surveillance <i>S. Bourganel¹, Margaux Faucher², Nicolas Thiollay³</i> ¹CEA/Saclay, France ²PHELMA student, France ³CEA/Cadarache, France</p>
Cancelled	E116	<p>The Metrological Experiment at Rivne NPP Unit 3 <i>V. N. Bukanov, V. L. Diemokhin, O. V. Grytsenko, O. G. Vasylieva, O. M. Pugach, S. M. Pugach, V. V. Ilkovich</i> Institute for Nuclear Research Prospect Nauky, Ukraine</p>
15:20 - 15:40	E125	<p>Reactor dosimetry aspects of the service life extension of the Hungarian Paks NPP <i>É. M. Zsolnay¹, Sz. Czifrus¹, S. Fehér¹, G. Hordósy², A. Keresztúri², N. Kresz³, F. Oszvald³</i> ¹Institute of Nuclear Techniques, Budapest University of Technology and Economics, Hungary ²Hungarian Academy of Sciences, Centre for Energy Research, Hungary ³Paks Nuclear Power Plant Ltd., Paks, Hungary</p>
16:00 - 16:20	COFFEE BREAK	
16:20 - 18:20	WORKSHOPS 3 & 4 Reactor Surveillance and Plant Life EWGRD Chair : <i>Christophe Destouches (CEA, France)</i> ASTM Chair : <i>Arnie Fero (Westinghouse, USA)</i> Experimental Techniques EWGRD Chair : <i>Ravi Mutnuru (NRG Petten, The Netherlands)</i> ASTM Chair : <i>Lawrence Greenwood (Pacific Northwest National Laboratory, USA)</i>	

Oral Session 5 Cross Sections, Nuclear Data and Uncertainties		
EWGRD Chair : Eva Zsolnay (BME, Hungary) ASTM Chair : Tim Valentine (Radiation Safety Information Computational Center, USA)		
08:20 - 08:40	A101	Use of Neutron Benchmark Fields for the Validation of Dosimetry Cross Sections <i>Patrick J. Griffin</i> <i>Sandia National Laboratories, Albuquerque, USA</i>
08:40 - 09:00	A116	A comprehensive approach to determination of nuclear data of unstable nuclei <i>S. Chiba¹, K. Nishio², Y. Aritomo¹, H. Koura², Osamu Iwamoto², H. Makii², I. Nishinaka² And K. Hirose²</i> ¹ <i>Research Laboratory for Nuclear Reactors, Tokyo Institute of Technology, Japan</i> ² <i>Japan Atomic Energy Agency, Japan</i>
09:00 - 09:20	E122	Validation of IRDFF in the standard and IRDF-2002 reference neutron fields <i>S.P. Simakov¹, R. Capote¹, L. Greenwood², P. Griffin³, V.G. Pronayev⁴, A. Trkov⁵</i> ¹ <i>International Atomic Energy Agency, Austria</i> ² <i>Pacific Northwest National Laboratory, USA</i> ³ <i>Sandia National Laboratories, USA</i> ⁴ <i>Institute for Physics and Power Engineering, Russia</i> ⁵ <i>Jožef Stefan Institute, Slovenia</i>
09:20 - 09:40	E124	Evaluation of the ⁹³Nb(n,γ) Reaction Cross-Section <i>K.I.Zolotarev¹, S.A.Badikov²</i> ¹ <i>Institute of Physics and Power Engineering, Russia</i> ² <i>National Research Nuclear University, Russia</i>
09:40 - 10:00	E155	Analysis of induced gamma activation by D-T neutrons in selected fusion reactor relevant materials with EAF-2010 and IRDFF-1.0 <i>A. Klix¹, U. Fischer¹, D. Gehre²</i> ¹ <i>Karlsruhe Institute of Technology, Germany</i> ² <i>Technical University of Dresden, Germany</i>
10:00 - 10:20	COFFEE BREAK	

WEDNESDAY MAY 21ST

10:20 - 12:20		Poster Session 2
EWGRD Chair : <i>Jan Wagemans (SCK•CEN, Belgium)</i> ASTM Chair : <i>Doug Selby (Oak Ridge National Laboratory, USA)</i>		
Reactor Surveillance and Plant Life		
	A134	Lifetime Neutron Fluence Analysis of the Ringhals Unit 1 Boiling Water Reactor <i>Joel A. Kulesza¹, Jenny Roudén², Eva-Lena Green²</i> ¹ Westinghouse Electric Company, USA ² Vattenfall/Ringhals AB, Sweden
	E117	Methodology of Fuel Burn Up Fitting in VVER-1000 Reactor Core by Using New Ex-vessel Neutron Dosimetry and In-core Measurements and Its Application for Routine RPV Fluence Calculations <i>Borodkin, P.G., Borodkin, G.I. and Khrennikov, N.N.</i> <i>Scientific and Engineering Centre for Nuclear and Radiation Safety (SEC NRS) Russia</i>
	E130	Pressure vessel Fluence calculations for the Hungarian VVER-440 units for the power uprate and the lifetime extension <i>Gábor Hordósy¹, András Keresztúri¹, Csaba Maráczky¹, Emese Temesvári¹, György Hegyi¹, É. M. Zsolnay²</i> ¹ Hungarian Academy of Sciences, Centre for Energy Research, Hungary ² Institute of Nuclear Techniques, Budapest University of Technology and Economics, Hungary
	E135	New Dosimetric Interpretation of the DV50 Vessel-Steel Experiment Irradiated in the OSIRIS MTR Reactor Using the Monte-Carlo Code TRIPOLI-4[®] <i>F. Malouch</i> <i>Alternative Energies and Atomic Energy Commission (CEA), Saclay Center, DEN/DANS/DM2S/SERMA, France</i>
	E140	Changes of VVER-1000 surveillance specimens irradiation conditions caused by fuel assemblies with higher fuel height <i>P. Panferov, V. Kochkin, D. Erak, D. Makhotin, A. Reshetnikov, A. Timofeev</i> <i>NRC «Kurchatov Institute», Russia</i>
	E158	VVER Knowledge Preservation and Transfer within the Frame of CORONA Project Activities <i>Mladen Mitev¹, Enrico Corniani², Maria Manolova¹, Lybomir Pironkov³</i> ¹ INRNE-BAS, , Bulgaria, ² JRC-IET, Petten, The Netherlands ³ Kozloduy NPP plc., Bulgaria

Transport Calculations (Neutron and Gamma-Ray) and Modeling		
A146	Analysis of Effective and Thyroid Doses According to Evaluation Methods of Radiological Source Terms <i>Hae Sun JEONG, Hyo Joon JEONG, Eun Han KIM, Moon Hee HAN, and Won Tae HWANG</i> Korea Atomic Energy Research Institute, Daejeon, Korea	
A147	Radiation Damage Assessment in the RPV of the Integral Inherently Safe Light Water Reactor (I²S-LWR) <i>Timothy Flaspoeehler and Bojan Petrovic</i> Georgia Institute of Technology, USA	
A148	Calculating Detailed Tritium Production Distributions Throughout the VHTR Reactor <i>Timothy Flaspoeehler, Bojan Petrovic</i> Georgia Institute of Technology, USA	
A152	ACS Algorithm for Pressure Vessel Reactor Dosimetry <i>William Walters, Alireza Haghighat</i> Virginia Tech, USA	
A153	Application of WCOS for Simulation of Particle Streaming in a Duct <i>Katherine Royston¹, Alireza Haghighat¹, Ce Yi²</i> ¹ Virginia Tech, USA ² Georgia Tech, USA	
A155	Evaluation of Geometric Progression (GP) Buildup Factors Using MCNP Codes (MCNP6.1 and MCNP5-1.60) <i>Kyung-O KIM, Gyuhong ROH, and Byungchul LEE</i> Korea Atomic Energy Research Institute, Korea	
A158	Neutron – Photon Coupling Transport in RMC code <i>Fan Xiao^{1,2}, Wang Kan², Zhang Guohui¹</i> ¹ State Key Laboratory of Nuclear Physics and Technology, Peking University, China ² Department of Engineering Physics, Tsinghua University, China	
E115	The Effect of a VVER-1000 core material composition on neutron transport calculations <i>O. V. Grytsenko, S. M. Pugach, V. L. Diemokhin, V. V. Ilkovich, V. N. Bukanov</i> Institute for Nuclear Research, Ukraine	
E136	Validation Of 3D Code Katrin for fast Neutron Fluence Calculation of VVER-1000 Reactor Pressure Vessel By Ex-Vessel Measurements and Surveillance Specimens Results <i>A.dzhalandinov¹, V. Tsofin¹, V. Kochkin², P. Panfyorov², A. Timofeev², A. Reshetnikov², D. Makhotin², D. Erak², A. Voloschenko³</i> ¹ Okb “Gidropress”, Russia ² National Research Centre, Russia ³ Keldysh Institute of Applied Mathematics, Russia	

WEDNESDAY MAY 21ST

Cross Section, Nuclear Data and Uncertainties		
A111	Toward a New Evaluation of Neutron Standards <i>A.D. Carlson, NIST, V.G. Pronyaev, IPPE, R. Capote, IAEA, G.M. Hale, LANL, F.-J. Hamsch, IRMM, T. Kawano, LANL, S. Kunieda, JAEA, W. Mannhart, PTB, R.O. Nelson, LANL, D. Neudecker, LANL, A.J.M. Plompen, IRMM, P. Schillebeeckx, IRMM, S. Simakov, IAEA, D.L. Smith, ANL, P. Talou, LANL, X. Tao, CIAE, A. Wallner, ANU, W. Wang, CIAE</i>	
A120	Development and Benchmark of HENDL-ADS/MG Neutron Data Library for Accelerator Driven Subcritical System Design <i>Jun ZOU¹, Fang WANG¹, Wei JIA¹, Liqin HU^{1,2}, Yican WU^{1,2}, FDS Team</i> ¹ <i>Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, China</i> ² <i>University of Science and Technology of China, China</i>	
A135	Comparison of Standard Light Water Reactor Cross-Section Libraries using The U.S. N.R.C. Pwr Standard Core Loading Benchmark Problem <i>F. Arzu Alpan, Joel A. Kulesza</i> <i>Westinghouse Electric Company LLC, USA</i>	
A136	Comparison of Standard Light Water Reactor Cross-Section Libraries using the U.S. N.R.C. Bwr Benchmark Problem <i>Joel A. Kulesza, F. Arzu Alpan</i> <i>1 Westinghouse Electric Company LLC, USA</i>	
A157	Photonuclear studies for the isomeric yield ratios in the production of ^{nat}Fe(γ,xnp)^{52m,g}Mn with bremsstrahlung beam <i>Md. Shakilur Rahman¹, Guinyun Kim², Kyung-Sook Kim², Manwoo Lee², Won Namkung³, A.K.M. Moinul Haque Meaze⁴, Tae-Ik Ro⁵</i> ¹ <i>Institute of Nuclear Science & Technology, Atomic Energy Research Establishment, Bangladesh Atomic Energy Commission, Ganakbari, Savar, Dhaka. 1349, Bangladesh</i> ² <i>Department of Physics, Kyungpook National University, Republic of Korea</i> ³ <i>Pohang Accelerator Laboratory, Pohang University of Science and Technology, Republic of Korea</i> ⁴ <i>Department of Physics, University of Chittagong, Bangladesh</i> ⁵ <i>Department of Physics, Dong-A University, Republic of Korea</i>	
E103	BUGJEFF311.BOLIB (JEFF-3.1.1) and BUGENDF70.BOLIB (ENDF/B-VII.0) - Generation Methodology and Preliminary Testing of Two ENEA-Bologna Group Cross Section Libraries for LWR Shielding and Pressure Vessel Dosimetry <i>Massimo Pescarini¹, Valentin Sinitsa², Roberto Orsi³, Manuela Frisoni³</i> ¹ <i>ENEA, Italy</i> ² <i>Kurchatov Institute, Russian Federation</i> ³ <i>ENEA, Italy</i>	

E110	Decay data for the International Reactor Dosimetry Library for Fission and Fusion (IRDF): updated evaluations of the half-lives and gamma ray intensities <i>Valery P. Chechev, Nikolay K. Kuzmenko</i> <i>Khlopin Radium Institute, St. Petersburg, Russia</i>
E112	Investigation of the Total Neutron Cross Sections of Natural Carbon at the Reactor Filtered Beams in the Energy Region 90-160 keV <i>O. Gritzay, S. Volkovetskyi, V. Libman, O. Kalchenko, V. Venedyktov</i> <i>Neutron Physics Department, Institute for Nuclear Research of NAS of Ukraine</i>
E123	Estimation of covariances on Prompt Fission Neutron spectra; impact of the PFNS model on the vessel Fluence <i>Leonie Berge, Olivier Litaize, Olivier Serot, David Regnier, Cyrille De Saint Jean, Pascal Archier, Yannick Penelieu</i> <i>CEA/DEN/DER/SPRC/LEPh, France</i>
Benchmarks and Intercomparison	
E104	Three-Dimensional (X,Y,Z) Deterministic Analysis of the PCA-Replica (H₂O/Fe) Neutron Shielding Benchmark Experiment Using the TORT-3.2 Code and Group Cross Section Libraries for LWR Shielding and Pressure Vessel Dosimetry <i>Massimo Pescarini, Roberto Orsi, Manuela Frisoni,</i> <i>ENEA, Italy</i>
E106	Verification of results of benchmark experiments on measuring spectra of neutron leakage from the surface of iron balls with radionuclide sources placed inside <i>Petrov E. E.¹, Dubinin A. A.¹, Chernov V. A.¹, Khoromskiy V. A.¹, Golashvily T. V.²</i> <i>¹SSC RF- IPPE, Obninsk, Russia</i> <i>²NRNU MEPHI, Moscow, Russia</i>
E138	The lead-based VENUS-F facility: status of the experiments in the FREYA project <i>A.Kochetkov, J. Wagemans, W. Uyttenhove, A. Krása, J. Hernandez</i> <i>SCK•CEN, Belgium</i>
Adjustment Methods	
A103	Least-Squares Neutron Spectral Adjustment with STAYSL PNNL <i>L. R. Greenwood, C. D. Johnson,</i> <i>Pacific Northwest National Laboratory, USA</i>

WEDNESDAY MAY 21ST

	A106	<p>Statistical model analysis for neutron ux correlation matrix and their application to the RA-6 BNCT facility and the Atucha I ex-vessel dosimetry <i>N. Chiaraviglio¹, J.M. Longhino¹, E.M. Lopasso¹, F. Albornoz², H. Blaumann³</i> ¹Departamento de Reactores y Radiaciones, Centro Atómico Bariloche, Comisión Nacional de Energía Atómica, ²Departamento de Energía Nuclear, INVAP ³Unidad de Área de energía Nuclear, Centro Atómico Bariloche, Comisión Nacional de Energía Atómica,</p>
	A109	<p>Development of a Neutron Spectroscopic System utilizing Compressed Sensing Measurement <i>Danilo Vargas¹, R. Cable Kurwitz¹, Igor Carron², K. Russell DePriest³</i> ¹Texas A&M University, USA ²Nuit Blanche ³Sandia National Laboratories, USA</p>
	A140	<p>Covariances for Gamma Spectrometer Efficiency Calibrations <i>John G. Williams</i> <i>Department of Aerospace and Mechanical Engineering, The University of Arizona, USA</i></p>
	E152	<p>CALMAR : a new versatile code library for adjustment from measurements <i>G. Grégoire, C. Fausser, C. Destouches, and N. Thiollay</i> <i>CEA, DEN, DER, Dosimetry, Sensors, Instrumentation Laboratory, France</i></p>
Technical Tour (Cadarache centre)		
Social Event		
Conference Dinner		

Oral session 6 Experimental Techniques		
EWGRD Chair : Jan Wagemans (SCK•CEN, Belgium) ASTM Chair : Cable Kurwitz (Texas A&M University)		
Moved to poster session 1 (Experimental Techniques)	E144	Validation of MCNP NPP Activation Simulations for Decommissioning Studies by Analysis of NPP Neutron Activation Foil Measurement Campaigns <i>B. Volmert¹, M. Pantelias¹, R.K. Mutnuru², E. Neukaeter³, B. Bitterli⁴</i> ¹ National Cooperative for the Disposal of Radioactive Waste, Switzerland ² NRG, The Netherlands ³ BKW FMB Energie AG-Kernkraftwerk Muehleberg, Switzerland ⁴ Kernkraftwerk Goesgen-Daeniken AG, Switzerland
09:20 - 09:40	E153	Nickel foil as transmutation detector for neutron uence measurements <i>Vít Klupák¹, Ladislav Viererbl¹, Zdena Lahodová¹, Jaroslav Šoltés¹, Ivo Tomandl², Petra Kudejová³</i> ¹ Research Centre Rez, Czech Republic ² Nuclear Physics Institute, Czech Republic ³ Technische Universität München, Forschungs-Neutronenquelle Heinz Maier-Leibnitz (FRM II), Germany
09:40 - 10:00	A139	Development of Neutron Dosimetry Technique with ⁹³Nb(n,n')^{93m}Nb Reaction by Resonance Ionization Mass Spectrometry <i>Hideki Tomita¹, Takaaki Takatsuka¹, Tetsuo Iguchi¹, Yoshitaka Adachi¹, Yujin Furuta¹, Takahide Takamatsu¹, Takuma Noto¹, Tetsu Sonoda², Michiharu Wada², Volker Sonnenschein³, Klaus Wendt³, Chikara Ito⁴, Shigetaka Maeda⁴</i> ¹ Nagoya University, Japan ² RIKEN, Japan ³ Johannes-Gutenberg University, Germany ⁴ JAEA, Japan
replaced by E108	A141	Design of a Coded-Aperture Compton Camera for Imaging Gamma Sources <i>John G. Williams, Aaron M. Farber</i> University of Arizona, USA
10:00 - 10:20	E108	4H-SiC Thermal Neutron Detector based on Ion Implantation of Boron <i>F.Issa¹</i> ¹ IM2NP (UMR CNRS 7334) – Aix-Marseille University, Case 231 -13397 Marseille Cedex 20, France
10:20 - 10:40	E111	Monte Carlo simulation study of a differential calorimeter measuring the nuclear heating in Material Testing Reactors <i>H. Amharrak¹, C. Reynard-Carette¹, A. Lyoussi², M. Carette¹, J. Brun¹, C. De Vita¹, D. Fourmentel², J-F. Villard², P. Guimbal³</i> ¹ Aix-Marseille University ² CEA, DEN, DER, Instrumentation Sensors and Dosimetry Laboratory, Cadarache, France ³ CEA, DEN, DER, SRJH, Cadarache, France

THURSDAY MAY 22ND

10:40 - 11:00	COFFEE BREAK	
Oral Session 7 Benchmarks and Intercomparison		
EWGRD Chair : Joerg Konheiser (HZDR, Federal Republic of Germany) ASTM Chair : Jehudah Wagschal (Hebrew University, Israel)		
11:00 - 11:20	E142	<p>The EWGRD Round Robin Measurement Exercise <i>D.A. Thornton¹, J. Wagemans², E. M. Zsolnay³, D.P. Kis³, J.M. Girard⁴, H. Philibert⁴, G. Rousseau⁵, A.C. Fernandes⁶, J.P. Santos⁶, R. Mutnuru⁷, V. Klupák⁸, T Serén⁹</i> ¹AMEC, Clean Energy – Europe, Gloucester, UK ²SCK•CEN, Belgium ³INT, Budapest University of Technology and Economics, Hungary ⁴CEA, Cadarache, France ⁵CEA, Valduc, France ⁶ITN, University of Lisbon, Portugal ⁷NRG, Petten, The Netherlands ⁸RCR, Rež, Czech Republic ⁹VTT, Finland</p>
11:20 - 11:40	E134	<p>The prompt fission neutron spectrum in the BR1 reactor at SCK.CEN <i>Jan Wagemans, Edouard Malambu, Luc Borms</i> SCK•CEN, Belgium</p>
11:40 - 12:00	A115	<p>Some insight into the generalized linear least squares parameter adjustment methodology <i>J.J. Wagschal, Edmond J. Racah</i> Institute of Physics, Hebrew University of Jerusalem, Israel</p>
12:00 - 12:20	E126	<p>Characterization of the CALIBAN Critical Assembly Neutron Spectra using several Adjustment Methods based on Activation Foils Measurements <i>Casoli P., Jacquet X., Authier N., Rousseau G.</i> CEA, Centre de Valduc, France</p>
12:20 - 13:45	LUNCH BREAK	
14:00 - 16:00	WORKSHOPS 5 & 6 Cross Sections, Nuclear Data and Uncertainties & Adjustment Methods EWGRD Chair : <i>Eva Zsolnay (BME, Hungary)</i> ASTM Chair : <i>Patrick Griffin (Sandia National Laboratories, Usa)</i> Benchmarks and Intercomparison EWGRD Chair : <i>Patrick Blaise (CEA, France)</i> ASTM Chair : <i>Bojan Petrovic (Georgia Institute of Technology)</i>	
16:00 - 16:20	COFFEE BREAK	
ASTM and EWGRD committee meeting		

Oral session 8 Cross Sections, Nuclear Data and Uncertainties		
EWGRD Chair : Dean Thornton (AMEC, United Kingdom) ASTM Chair : A. C. "Skip" Kahler (Los Alamos National Laboratory, USA)		
08:20 - 08:40	A113	2013 Review of Neutron and Non-Neutron Nuclear Data <i>Holden, N. E.</i> National Nuclear Data Center, Brookhaven National Laboratory, USA
08:40 - 09:00	A150	A Re-Analysis of Historical Los Alamos Critical Assembly Reaction Rate Measurements <i>A.C.Kahler, M.MacInnes, M.B.Chadwick</i> Los Alamos National Laboratory, USA
09:00 - 09:20	E146	Generation of U238 covariance matrices by using the Integral Data Assimilation technique of the CONRAD code <i>E. Privas, P. Archier, D. Bernard, C. De Saint Jean, C. Destouches, P. Leconte, G. Noguere, Y. Pennelieu</i> CEA Cadarache, DEN/DER, France
09:20 - 09:40	E133	Modernization of Cross Section Libraries for VVER-1000 Type Reactors Internals and Pressure Vessel Dosimetry <i>S.M. Zaritskiy¹, A.M. Voloschenko², A.L. Egorov¹, V.F. Boyarinov¹</i> ¹ National Research Centre "Kurchatov Institute", Russia ² M.V. Keldysh Institute of Applied Mathematics, Russia
09:45 - 11:45	WORKSHOPS SUMMARIES & CONCLUSION PANELS EWGRD Chair : <i>Ravi Mutnuru (NRG Petten, The Netherlands)</i> ASTM Chair : <i>Igor Remec (Oak Ridge National Laboratory)</i> Poster awards Closing session EWGRD Chair : <i>Pierre D'hondt (SCK•CEN, Belgium) + New elected chairman</i> ASTM Chair : <i>Mary-Helen Sparks (White Sands Missile Range, USA)</i>	