



# Nuclear 2010

The Third  
Annual International Conference  
on Sustainable Development  
through Nuclear Research  
and Education

## CONFERENCE PROGRAM

May, 26-28  
Pitești,  
România



CONFERENCE  
SPONSORS:



Room A (Conference Room)	Room B (S1)	Room C (S III)	Room D (Red Room)
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<b>May 26</b>	08:30	Depart to ICN from Muntenia Hotel			
	08:30 – 09:30	Registration	Poster Session I		
	09:30 – 10:00	Opening Ceremony			
	10:00 – 11:00	Plenary Session			
	11:00 – 11:30	Coffee break			
	11:30 – 13:00	Plenary Session			
	13:00 – 14:00	Lunch			
	14:00 – 16:00			Nuclear Reactors	Radioactive Waste Management
	16:00 – 16:15	Coffee break			Nuclear Safety
	16:15 – 17:30			Round Table 1	

<b>May 27</b>	08:30	Depart to ICN from Muntenia Hotel				
	09:00 – 10:30	Plenary Session	Poster Session II			
	10:30 – 11:00	Coffee break				
	11:00 – 12:40	Sustainable Development				
	12:40 – 14:00	Lunch				
	14:00 – 16:00			Radioprotection & Air, Water and Soil Protection	Nuclear Technology and Materials	
	16:00 – 16:15	Coffee break		Poster Session III		
	16:15 – 17:30				Round Table 2	
	19:00	Conference dinner				

<b>May 28</b>	09:00	Depart to ICN from Muntenia Hotel		
	09:30 – 12:00	Technical visit of the TRIGA reactor and Hot cell laboratory		
	12:00 – 13:00	Visit of Golesti Viticulture Museum and Bratianu Complex - Stefanesti		
	13:30 – 15:30	Lunch at Vila Florica, Stefanesti		
	16:00	Arrival in Pitesti		

May 26

<b>08:30 – 09:30</b>	<b>Registration</b>
<b>09:30 – 10:00</b>	<b>Opening Ceremony</b>

**PLENARY SESSION**

Room A

10:00 – 10:10	Marius Peculea <i>Romanian Academy</i>	
10:10 – 10:30	Duk Sang Ha <i>KHNP Korea</i>	Nuclear technology development in Korea
10:30 – 11:00	Serban Valeca <i>University from Pitesti- Romania</i>	The future challenges: Globalization, Energy or Environment?
<b>11:00 – 11:30</b>	<b>Coffee break</b>	
11:30 – 12:00	Christophe Davies <i>European Commission</i>	30 years of research into radioactive waste management and disposal - Euratom perspective
12:00 – 12:30	Claire Mays <i>Symlog - France</i>	Sustainability, Stepwise Decision Making and Civil Society in Radioactive Waste Management
12:30 – 12:45	Ioana Rodica Stanculescu <i>IFIN – HH Romania</i>	Restoring the Past - Preserving the Future
12:45 – 13:00	Book Launch	
<b>13:00 – 14:00</b>	<b>Lunch</b>	

May 26

**Session I.1**

Room B

**Chairman:** Georgio Glinatsis**Co-chairman:** Marin Ciocanescu**Nuclear Reactors**

14:00 – 14:20	ENEA, <i>Italy</i>	<u>C. Artioli</u> , G. Grasso, C. Petrovich	Innovative Reactor Core: Potentialities And Design
14:20 – 14:40	ENEA, <i>Italy</i>	G. Glinatsis	On the Management of Minor Actinides from Sub-Critical to Critical Reactors
14:40 – 15:00	ICN Pitesti, <i>Romania</i>	<u>D. Gugu</u> , C. Petrovich, C. Artioli	Preliminary Dose Estimations for a Lead Fast Reactor
15:00 – 15:20	ICN Pitesti, <i>Romania</i>	<u>A. Catana</u> , I. Turcu, I. Prisecaru	CFD Analysis of Multiphase Coolant Flow through Fuel Rod Bundles in Advanced Pressure Tube Nuclear Reactors
15:20 – 15:40	ICN Pitesti, <i>Romania</i>	<u>I. Prodea</u> , I. Visan, M. Gruia	WLUP Burnable Absorber Isotopic Influence on Coolant Void Reactivity in an ACR Lattice
<b>15:40 – 16:15</b>	<b>Coffee break</b>		

**Session I.2****Room D****Chairman:** Ilie Turcu**Co-chairman:** Marin Constantin**Nuclear Safety**

14:00 – 14:20	ICN Pitesti, <i>Romania</i>	<u>I. Dumitrescu</u> , D. Ohai, T. Meleg, M. Mihalache, D. Benga	Microstructure Modification of Uranium Dioxide Fuel Pellets in Accident Conditions
14:20 – 14:40	ICN Pitesti, <i>Romania</i>	<u>T.Meleg</u> , D. Ohai, C.Ducu, M.Abrudeanu	The Damped Oscillator Model for the Post-Transition Oxidation Kinetics of Zircaloy-4 Fuel Cladding
14:40 – 15:00	ICN Pitesti, <i>Romania</i>	<u>M. Constantin</u> , M. Apostol, A. Constantin	Source Term Formation in CANDU Severe Accidents
15:00 – 15:20	ICN Pitesti, <i>Romania</i>	A. Rizoiu	Application of ASTEC v2.0 Integral Code on International Standard Problems (ISP-31, ISP-36 and ISP-46)
15:20 – 15:40	ICN Pitesti, <i>Romania</i>	<u>M. Mladin</u> , D. Mladin	Calculations of Steady-State and Reactivity Insertion Transients in a Research Reactor Simulating PWR
<b>15:40 – 16:15</b>	<b>Coffee break</b>		

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**Session II.1****Room C****Chairman:** Christophe Davies**Co-chairman:** Daniela Diaconu**Radioactive Waste Management**

14:00 – 14:15	AN&DR <i>Romania</i>	<u>I. Nastasescu</u> , D. Popescu, A. Sorescu, <u>A. Petrescu</u>	Current Status of DFDSMA Saligny Investment
14:15 – 14:30	AN&DR <i>Romania</i>	M. Dinca	National Provisions for Decommissioning and Managing Radioactive Waste from Decommissioning
14:30 – 14:45	IFIN – HH <i>Romania</i>	<u>M. Dragusin</u> , R. Deju, V. Popa, I. Iorga	Decommissioning of the Nuclear Research Reactor VVR-S Magurele-Bucharest Romania
14:45 – 15:00	INFLPR <i>Romania</i>	<u>F. Scarlat</u> , R. Minea, A. Scarisoreanu, E. Badita, E. Mitru, E. Sima, M. Dumitrascu	On the Laser - Proton Accelerator Parameters for the Nuclear Waste Transmutation
15:00 – 15:15	ICN Pitesti, <i>Romania</i>	<u>C. Bucur</u> , M. Dragomir, M. Olteanu, M. Pavelescu	Iodine Sorption on Loess and Clay Samples
15:15 – 15:30	ICN Pitesti, <i>Romania</i>	<u>L. C. Dinu</u> , G. Androne, C.G. Lazar, O. Ichim, R. Nita, M. Mincu, D. Anghel, A. Benga	Determination of the U-23x/Gamma Scaling Factors for Radioactive Waste Produced in the Post-Irradiation Examination Laboratory of INR Pitesti
15:30 – 15:45	ICN Pitesti, <i>Romania</i>	<u>G. Vieru</u> , V. Nistor, A. Vasile	Testing of Radioactive Material Packages in Romania (SCN Pitesti)
15:45 – 16:00	LANL SUA	<u>I. Witkowski</u> , J. Whitworth, M.Pearson, A. Cuthbertson	Off-Site Source Recovery Project and Its Mission in the World
<b>16:00 – 16:15</b>	<b>Coffee break</b>		

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**Round Table****Room B****Chairman:** Claire Mays**Co-chairman:** Marin Constantin

**16:15 – 17:30** *Transparency Versus Confidentiality: Aspects of Aarhus Convention Implementation in Nuclear Field*

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May 27

**PLENARY SESSION**

Room A

09:00 – 09:30	Frank Carre <i>CEA France</i>	The French Strategy for Generation IV
09:30 – 10:00	Edward Bennett <i>COG - Canada</i>	The Role of COG in Fuel Channel Life Management
10:00 – 10:30	Vasile Radu <i>ICN Pitesti, Romania</i>	Stochastic Approach of Thermal Fatigue Crack Growth in Mixing Tee Piping System from NPP
<b>10:30 – 11:00</b>	<b>Coffee break</b>	

May 27

**Session III**

Room A

**Chairman:** Jakub Prahľ**Co-chairman:** Marin Constantin**Sustainable Development**

11:00 – 11:20	Technology Consultancy <i>United Kingdom</i>	A.J. Wickham, G. Haag, L. Ralph, M. Gladyshev	IAEA International Knowledge Base on Nuclear Graphite
11:20 – 11:40	Research Centre Rez Ltd <i>Czech Republic</i>	P. Moulis, T. Skiba, J. Prahľ	SUSEN Project – New Challenge for European Research
11:40 – 12:00	ICSI Rm. Valcea <i>Romania</i>	Gh. Ionita, C. Varlam, V. Ciocirlan	Characteristics and Vulnerabilities of Human Resources in Nuclear Field
12:00 – 12:20	Cernavoda NPP <i>Romania</i>	C. Valache	Elements and Strategies of Knowledge Management at Cernavoda NPP
12:20 – 12:40	University of Bucharest <i>Romania</i>	M. Tronea	Regulatory Assessment of Safety Culture in Nuclear Organisations - Current Trends and Challenges
<b>12:40 – 14:00</b>	<b>Lunch</b>		

May 27

**Session I.3**

Room C

**Chairman:** Decebal Ciurchea**Co-chairman:** Dumitru Ohai**Nuclear Technology and Materials**

14:00 – 14:15	AECL, <i>Canada</i>	A. Celovsky	Benefits of Material Surveillance: A CANDU Perspective
14:15 – 14:30	ICN Pitesti, <i>Romania</i>	D. Ohai	Materials Research and Development for Innovative Nuclear Installations
14:30 – 14:45	ICN Pitesti, <i>Romania</i>	M. Rădulescu, D. Ștefănescu, L. Popa, S. Mogosan	Water Chemistry Impact on the Deposits Formation on Secondary Circuit
14:45 – 15:00	Babes-Bolyai University, Cluj, <i>Romania</i>	D. Ciurchea	The Bain Strain Issue in the Phase Transformation of Zirconium
15:00 – 15:15	ICN Pitesti, <i>Romania</i>	M. Fulger, M. Mihalache, L. Velciu, S. Florea	Oxidation Behaviour of an Austenitic SS and a Ni-Based Alloy in Supercritical Water Conditions
15:15 – 15:30	ICN Pitesti, <i>Romania</i>	V. Ionescu	Investigation of the Zr-2,5%Nb Alloy Structure by Ultrasonic Spectral Analysis
15:30 – 15:45	ICSI Rm. Valcea <i>Romania</i>	A. Ștefănescu, N. Bidica, A. Bornea, I. Ștefănescu	Experimental Procedures for Subtracting the Isobaric Contribution and for Calibrating the GSD 320 Quadrupole Mass Spectrometer used to Analyze Hydrogen Isotopes Gas Mixtures
15:45 - 16:00	ICN Pitesti, <i>Romania</i>	M. Parvan, O. Uță, M. Mincu, I. Man	Upgrading of SCN Hot Cell Laboratory by New Equipments for Microanalysis and Mechanical Testing Sample Preparation
<b>16:00 – 16:15</b>	<b>Coffee break</b>		

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**Session II.2 & II.3****Room B****Chairman:** Fawzi Ikraim**Co-chairman:** Ion Popescu**Radioprotection & Air, Water and Soil Protection**

14:00 – 14:15	CNE Cernavoda, Romania	<u>I. Popescu</u> , C. Chitu	Professionally Exposed Workers' Internal Dosimetry for Gamma Emitting Radionuclides at Cernavoda NPP
14:15 – 14:30	CNE Cernavoda, Romania	C. Chitu	Management of Occupational Exposure at Cernavoda NPP
14:30 – 14:45	ICN Pitesti, Romania	<u>C. Dulama</u> , Al. Toma, R. Dobrin, M. Valeca	Rapid Radiological Characterization Method Based on the Use of Dose Coefficients
14:45 – 15:00	Canberra Packard Central Europe Romania	R. Vasilache, T. Kobayashi	Glass dosimetry as an alternative to TL and film dosimetry for personnel monitoring
15:00 – 15:15	ICN Pitesti, Romania	<u>C. Talpalariu</u> , J. Talpalariu, C. Matei, L. Ioan, O. Popescu	New Technologies in Solid-State Radiation Detectors for Nuclear Safety Active Personal Dosimetry and Radiations Source Tracking
15:15 – 15:30	IFIN – HH Romania	<u>A. Pantelica</u> , A. Stoichioiu, M. Draguşin	Radioactivity of Environmental and Nuclear Reactor Decommissioning Samples by Low Background Gamma-Ray Spectrometry
15:30 – 15:45	Al-Mukhtar University, El- Beida, Libya	<u>F.A. Ikraim</u> , T.A. Mohamed, M.K. Alfakhar, A.I. Ali	Investigating the Possibility of Using Phenol-Formaldehyde Polymer as a Nuclear Gamma Ray Shield
16:00 – 16:15	<b>Coffee break</b>		

May 27

**Round Table****Room B****Chairman:** Maria Roth**Co-chairman:** Nicolae Zamfir**16:15 – 17:30 | Educational Offer and Career Opportunities in Nuclear**

19:30	Conference Dinner (Victoria Hotel)
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May 28

09:30 – 12:00	Technical visit – TRIGA reactor and Hot Cells facility
12:00 – 13:00	Visit of Golesti Viticulture Museum and Bratianu Complex - Stefanesti
13:30 – 15:30	Lunch at Vila Florica, Stefanesti
15:30 – 16:00	Travel to Pitesti

# POSTERS SESSIONS

## Session I

### Nuclear Safety

S1-P1	M. Sallah <sup>a)</sup> , C. A. Margeanu <sup>b)</sup> <i>a) Mansoura University, Egypt</i> <i>b) ICN Pitesti, Romania</i>	Stochastic Time-Dependent Neutron Transport in Participating Semi-Infinite Media with Refractive-Index-Dependent Boundary
S1-P2	M.Țenescu, M. Biġu, I. P.Niță <i>CITON Romania</i>	Redesign of Emergency Wayer Supply System By-Pass Line from Cernavodă NPP Unit 1 and 2 using Self Regulating Valves
S1-P3	D. Mladin, M. Mladin, I. Prisecaru <i>ICN Pitesti, Romania</i>	Comparing Failure Rates from Different Research Reactors Including Romanian TRIGA SSR Reactor
S1-P4	C. Doca, L. Doca <i>ICN Pitesti, Romania</i>	A Mathematical Approach of the "Self-Disintegration" Experimental Data
S1-P5	M. Serbanel, C. Diaconu <i>ICN Pitesti, Romania</i>	The Thermalhydraulic Behaviour of a CANDU Channel During a Channel Flow Blockage Accident
S1-P6	M. Farcasiu, I. Prisecaru <i>ICN Pitesti, Romania</i>	Qualitative Analysis of the Man-Organization System in Accident Conditions for Nuclear Installation
S1-P7	M. Apostol, M. Constantin, A. Leca <i>ICN Pitesti, Romania</i>	The Influence of User Effect in Quality Assurance of Accident Analyses
S1-P8	A. Constantin <i>ICN Pitesti, Romania</i>	Sensitivity Study on Fission Products Chemistry in a CANDU Severe Accident

### Nuclear Reactors

S1-P9	S. Guġiu, G. Campean <i>CITON Romania</i>	The PHWR CANDU 6 Project from Unit 2 from Cernavoda against the European Utilities Requirements (Eur)
S1-P10	L. Ciufu, R. Mateescu, M. Vlad, M. Popescu <i>CITON Romania</i>	CITON Solutions for Introducing Distributed Control System in Nuclear Steam Supply Systems at Cernavodă NPP
S1-P11	I. Patrulescu <i>ICN Pitesti, Romania</i>	Calculation of Spert Reactor Benchmarks Using 3D Diffusion Code DIREN
S1-P12	V. Balaceanu, M. Pavelescu, L. Aioanei <i>ICN Pitesti, Romania</i>	Hyperfine 3D Neutronic Calculations in CANDU Supercells
S1-P13	I. E. Vișan <i>ICN Pitesti, Romania</i>	Analysis on Specific Nuclear Data for Reactor Physics Computations Applied to CANDU Reactor Using Thorium-Based Fuels
S1-P14	C. A. Margeanu <i>ICN Pitesti, Romania</i>	Evaluation of Radiological Impact Due to Direct Exposure to a Radiological Dispersal Device Using Spent Fuel Assembly
S1-P15	I. Prodea, A. Catană <i>ICN Pitesti, Romania</i>	Fuel Rod Bundles Proposed for Advanced Pressure Tube Nuclear Reactors
S1-P16	C. Aioanei <i>ICN Pitesti, Romania</i>	Comparative Results for Benchmark Test Problems in CANDU Lattices
S1-P17	E.M. Ana, S. Valeca, M. Preda <i>ICN Pitesti, Romania</i>	TRIGA SSR 14MW Data Acquisition and Monitoring System

May 26, 10:00 – 17:30

## Radioactive Waste Management

S1-P18	E. A. Petre, C. E. Manea (Diaconescu), M. Valeca <i>University from Pitesti, Romania</i>	Determination of Radionuclides Concentration from a Sample of Liquid Radioactive Waste
S1-P19	S. Valeca, M. Valeca, M. Ioan, D. Nastase <i>ICN Pitesti, Romania</i>	Comparative Analysis Concerning the Components of the Cost Between Carbon Capture and Storage and Spent Nuclear Fuel Disposal
S1-P20	O. Arhire <i>Technical Construction University, Bucharest, Romania</i>	Review of Liquid Radioactive Waste Management
S1-P21	G. Vieru, V. Nistor, R. Mihaiu <i>ICN Pitesti, Romania</i>	Quality Assurance Requirements in the Testing of Packages to Be Used for Safe Transportation of RAM
S1-P22	G. Barariu, R. C. Georgescu, F. Sociu, R. Toma, C. Bucur <i>CITON Romania</i>	Radioactive Waste Management Methodology Development for Waste Generated by Nuclear Facilities Decommissioning Applicable to CANDU - 600 Nuclear Power Plant
S1-P23	M. Iordache, M. Dianu, I. V. Popescu <i>ICN Pitesti, Romania</i>	Activity Evaluation of $^{60}\text{Co}$ , $^{137}\text{Cs}$ , $^{152}\text{Eu}$ , $^{154}\text{Eu}$ , $^{14}\text{C}$ and Total $\beta$ in Graphite from Thermal Column of Romanian TRIGA Research Reactor
S1-P24	L. Bujoreanu, I.V.Popescu, D. Bujoreanu, M. Olteanu <i>ICN Pitesti, Romania</i>	Method for Separation and Measurement of Nickel-63 in Radioactive Waste
S1-P25	G.C.Lazăr ,G.Androne, M.Tătărăscu, M.Mincu, L.C.Dinu, A.Benga <i>ICN Pitesti, Romania</i>	Method of Alpha Emitters Determination from Solid Radioactive Waste Resulted in The Post-Irradiation Examination Process
S1-P26	S. Stoica, O. Popescu, C. Ichim, C. Bucur <i>ICN Pitesti, Romania</i>	Lysimeter Station for Saligny Site

May 27, 9:30-14:00

## Session II

### Nuclear Technology and Materials

S2-P1	H. Klebba, T.Wickland, L. Anderson <i>Nuclear Filter Technology USA</i>	New Generation Nuclear Material Container
S2-P2	S. Gherghinescu <i>ICSI Rm. Valcea, Romania</i>	Multilayer Insulation for Cryogenic Equipment of Nuclear Facilities
S2-P3	I. Picioroa <i>ICSI Rm. Valcea, Romania</i>	Estimation of Measurement Uncertainties using Within-Laboratory Validation and Quality Control Data
S2-P4	S. Mogosan <i>ICN Pitesti, Romania</i>	Some Methods of Analysis and Diagnosis of Corroded Components from Nuclear Power Plant
S2-P5	I. Pirvan <i>ICN Pitesti, Romania</i>	Impacts of Cooling Water Quality on Operational Safety of Water Cooled Components from CANDU Reactor Primary System
S2-P6	D. Bărbos, A.F. Bucșă, C. Păunoiu <i>ICN Pitesti, Romania</i>	Determination of Elemental Concentration in Standards Stainless Steel by $K_0$ -Standardization Neutron Activation Analysis
S2-P7	I. Ionita, V. Florescu <i>ICN Pitesti, Romania</i>	Improved Self-Control System for the DR1 High Resolution Focusing Neutron Crystal Diffractometer Operation
S2-P8	S. Ionescu, O. Uta <i>ICN Pitesti, Romania</i>	Mechanical Tests on Hydrided Fuel Sheath Samples
S2-P9	R. Niță, O. Uță, M. Pârvan, M. Mincu <i>ICN Pitesti, Romania</i>	Performance Evaluation of Two CANDU Fuel Elements Tested in the TRIGA Reactor
S2-P10	M. Dragomir, D.Ohai, I. Dumitrescu, I. Furtuna <i>ICN Pitesti, Romania</i>	ICP- $\alpha$ TOFMS Utilisation to Determine the Isotopic Abundance of Gd in Gadolinium Nitrat

May 27, 9:30 – 14:00

<b>S2-P11</b>	M. Tunaru, L. Velciu, A.Voicu <i>ICN Pitesti, Romania</i>	Microbiologically Influenced Corrosion of Carbon Steel in the Presence of Acid-Producing Bacteria
<b>S2-P12</b>	L. Velciu, L. Popa, M. Mihalache, V. Ionescu, A. Nitu, S. Dragomir <i>ICN Pitesti, Romania</i>	Analysis of Some Materials Used in the Steam Generator after Corrosion Tests
<b>S2-P13</b>	M. Lazar, P. Popescu <i>ICN Pitesti, Romania</i>	Behaviour Analysis to Corrosion of the Weldings from Aluminum Alloys
<b>S2-P14</b>	L. Dumitrache, I. Furtună, D. Doanță, M. Deaconu <i>ICN Pitesti, Romania</i>	Implementing an Experimental Method for Nuclear Materials Characterization
<b>S2-P15</b>	D. Stefanescu, M. Radulescu, S. Mogosan <i>ICN Pitesti, Romania</i>	A Review Considering Long Time Ageing of CANDU Containment Buildings
<b>S2-P16</b>	G. Gheorghe, I. Man, M. Pârvan <i>ICN Pitesti, Romania</i>	CANDU Fuel Sheath Integrity Assessment and Oxide Layer Thickness Determination by EDDY Current Technique
<b>S2-P17</b>	D. Puiu, T. Gyongyosi, E. Dinu <i>ICN Pitesti, Romania</i>	Evaluation of Degradation Due to Ageing of the Power Cable with PVC Insulation and Jacket. Development of the Indentation Test
<b>S2-P18</b>	M.Țăcică, M. Abrudeanu <i>ICN Pitesti, Romania</i>	The Influence of Hydrogen Absorption to the Mechanical and Microstructural Properties of Zircaloy-4 Sheathing
<b>S2-P19</b>	J. Talpalariu, C. Matei, O. Popescu <i>ICN Pitesti, Romania</i>	Telepositional Portable Real Time Radiation Monitoring System
<b>S2-P20</b>	G. Florescu, C. Agapi, A. Popa, V. Panaitescu, I. B. Florescu <i>ICN Pitesti, Romania</i>	Actual Methods for On-Line Pipeline Systems Evaluation
<b>S2-P21</b>	D. Gugiu, C. Roth, A. Ghinescu <i>ICN Pitesti, Romania</i>	Gamma Ray Auto Absorption Correction Evaluation Methodology
<b>S2-P22</b>	T. Gyongyosi, V. N. Panaitescu <i>ICN Pitesti, Romania</i>	Technological Facilities Designed for Experimental Characterization of the Plug-Defective Tube Joint
<b>S2-P23</b>	D. Lucan, M. Fulger, D. Astefanesei <i>ICN Pitesti, Romania</i>	Research Experience with the Secondary Side Corrosion of CANDU Steam Generators
<b>S2-P24</b>	I. Pîrvu, S. Valeca, A. Pulpa, M. Stoica <i>ICN Pitesti, Romania</i>	Ageing of Electronic Equipments Used in Cernavoda NPP
<b>S2-P25</b>	L. Popa, M. Radulescu, L. Velciu, M. Ionita <i>ICN Pitesti, Romania</i>	The Utilization of Some Methods for the Characterization of SnO <sub>2</sub> Nanoparticles
<b>S2-P26</b>	T. Gyongyosi, S. Valeca, V. N. Panaitescu <i>ICN Pitesti, Romania</i>	Initiation and Development of Technological Facilities Useful Horizontal Large Diameter Plugging Pipes
<b>S2-P27</b>	T.Meleg, I.Dumitrescu <i>ICN Pitesti, Romania</i>	Specific Heat and Heat Capacity Measurements on Oxidized Zy-4
<b>S2-P28</b>	P. Carlan, I. Chichinas, A. Dinu, M. Mihalache <i>ICN Pitesti, Romania</i>	Comparison of Ir-Al And Co-Al Intermetallic Mixtures for Nuclear Applications
<b>S2-P29</b>	C. Câmpeanu, C. Barna, P. Busuic <i>IFIN –HH Romania</i>	Obtaining of a New Type of <sup>99</sup> Mo- <sup>99m</sup> Tc Generator Based on <sup>99</sup> Mo-Zr Gel Technology Using <sup>99</sup> Mo Obtained by Irradiation

## Session III

### Radioprotection & Air, Water and Soil Protection

<b>S3-P1</b>	E. Bobric, I. Popescu, V. Simionov <i>CNE Cernavoda, Romania</i>	Public Doses Due to Tritium Emissions from Cernavoda NPP
<b>S3-P2</b>	V. Simionov, A. Cojanu, S. Murgoci, G. Zulcheffil, C. Chitu <i>CNE Cernavoda, Romania</i>	Radiation Monitoring Systems Network at Cernavoda NPP: Present (Unit 2) and Future Extension (to Unit 1)
<b>S3-P3</b>	T. Ivana, Gh. Epure <i>FCN Pitesti</i>	Individual Radiological Monitoring for Exposed Personnel at Nuclear Fuel Plant Pitesti
<b>S3-P4</b>	V. Olaru, T. Ivana, G. Epure <i>FCN Pitesti, Romania</i>	Implementation of Integrated Safeguards at Nuclear Fuel Plant Pitesti Romania
<b>S3-P5</b>	I. Faurescu, A. Feru, C. Varlam, D. Faurescu, I. Vagner, D. Bogdan <i>ICSI Rm. Valcea, Romania</i>	Use of C-14 and Environmental Isotopes to Estimate Aquifer Recharge Conditions
<b>S3-P6</b>	E. David, J. S. Cho, I. Iordache <i>ICSI Rm. Valcea, Romania</i>	Soil and Water Contamination with Aromatics Compounds and Their Effect on Environment
<b>S3-P7</b>	R. Vremera, D. Costinel, R.E. Ionete, C. Jong Soo <i>ICSI Rm. Valcea, Romania</i>	Isotopic Fingerprinting of Bradisor Reservoir from Rm.Valcea, Romania
<b>S3-P8</b>	D.Florescu, G. Saros, C. Sandru, R. Ionete <i>ICSI Rm. Valcea, Romania</i>	Chemical Aspects of Soil Sediments from Turceni Industrial Area
<b>S3-P9</b>	I. Geana, A. Iordache, R. Ionete <i>ICSI Rm. Valcea, Romania</i>	Evaluating Heavy Metal Contents in Soils Using Microwave Digestion Method and ICP-MS technique
<b>S3-P10</b>	F. Scarlat, R. Minea, A. Scarisoareanu, E. Badita, E. Mitru, E. Sima, M. Dumitrascu <i>INFLPR Romania</i>	Secondary Standard Dosimetry Laboratory at INFLPR
<b>S3-P11</b>	M. Valeca, D.Udrescu, M. Ticea, A. Ciurduc-Todoran <i>ICN Pitesti, Romania</i>	Using Clean Technology to Treat Waste Water for Environmental Protection
<b>S3-P12</b>	R. I. Dobrin, M. Pavelescu, C. N. Dulam, Al. Toma <i>ICN Pitesti, Romania</i>	Evaluation of Counting Efficiency for Beta Ray Emitters in LSC
<b>S3-P13</b>	M. G. Tatarascu, M. Valeca, A. Ciurduc-Todoran, M. Constantin <i>ICN Pitesti, Romania</i>	MS Access Databases as Tool for the Management of the Chemicals Used in the Post-Irradiation Examination Laboratory of INR Pitesti
<b>S3-P14</b>	D. Onofrei, N. Braniste, S. Valeca <i>ICN Pitesti, Romania</i>	Lack of Information Born Monsters
<b>S3-P15</b>	M. Constantinescu, D. Elena, F. Bucura <i>ICSI Valcea, Romania</i>	Air Quality Monitoring with Specified Analyzers

## Strategies in Energy

<b>S3-P16</b>	G. Popescu, S. Gherghinescu, M.Vacaru <i>ICSI Rm. Valcea, Romania</i>	Risk Theory in Reengineering & Cost Reduction
<b>S3-P17</b>	G. Florescu, V. Panaitescu <i>ICN Pitesti, Romania</i>	Actual Technological Trend in NPP's Systems Development
<b>S3-P18</b>	M. Cojan <i>ICN Pitesti, Romania</i>	Generation III Reactors – The Nuclear Renaissance

## Education, Continuous Formation and Knowledge Transfer

<b>S3-P19</b>	E. Scott de Martinville, K.B. Ouaghrem, U.Erven, M.Maqua, Z.Kfiž, S.Rimkevicius <i>IRSN France</i>	ENSTTI An European Institute for Training and Tutoring in Nuclear Safety
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## International Partnership for a Sustainable Development

<b>S3-P20</b>	I. Ioan, C. J. Soo, D. Elena, C.Diana, V. Raluca <i>ICSI Rm. Valcea, Romania</i>	The Investigation, Remediation and Monitoring of Soil and Groundwater Contaminated Sites; Romanian-Korean Mutual Training and Collaboration Action
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## Research Infrastructures

<b>S3-P21</b>	A. Dinu <i>ICN Pitesti, Romania</i>	Performing Analysis Methodology of Degradation by Corrosion Mechanisms and the Preventive Actions of the Negative Effects in the NPP Circuits with Direct Impact in the Long-Term Development
<b>S3-P22</b>	C. Roth, D. Dobrea, C.Truta, D. Gugiu, D.Barbos, L. Aioanei, M. Preda, A. Datcu, V. Pitigoi <i>ICN Pitesti, Romania</i>	Innovative Contributions on the Experimental Infrastructure Development
<b>S3-P23</b>	I. Vasa, C. Roth, M. Constantin <i>ICN Pitesti, Romania</i>	ADRIANA – Initiative and Network Arrangement for Research Infrastructure
<b>S3-P24</b>	A.E.M.Mohamed, Alexandria University, <i>Egypt</i>	Egyptian Nuclear Activities at Research Reactors, Laboratories, and Uranium Production (independent review)

# Background



- 1970** – A mission of IAEA experts in Romania favorably advises the necessity to establish the Institute.
- 1971** – **Institute for Nuclear Technologies (ITN)** is founded, with the main purpose to provide scientific and technological support for the Romanian Nuclear Program.
- 1977** – Research laboratories are commissioned on the new premises in Mioveni-Colibasi, at 130 km NW from Bucharest. The Institute assignments are enlarged by involvement in design activities of nuclear system components. Its name is now changed into the **Institute for Nuclear Power Reactors (IRNE)**.
- 1978** – Quality Assurance Requirements were settled for the reactor operation. The first QA manual was accepted by the Nuclear Authority. Today the Quality Management System is extended to all activities which take place in the institute: research, design, manufacturing and exploitation in the nuclear field;
- 1979** – November 18: the first criticality is attained at the TRIGA Materials Testing Reactor, built within the institute.
- 1980** – Commissioning of the Pilot-scale plant for the fabrication of CANDU-type fuel elements;
- 1983** – Commissioning of the Post-Irradiation Examination Laboratory (LEPI).
- 1984** – Commissioning of the Endurance Test Rig for fuel bundles at the Out-of-Pile Testing Department.
- 1984** – Commissioning of the Radioactive Waste Treatment Plant.
- 1985** – Starting of CANDU fuel bundles fabrication in SPEC (Unit for Fuel Elements Production).
- 1989** – With the arrival of the F/M Heads #4 and #5 intended for Cernavoda NPP-Unit 2, the F/M head test stand is commissioned.
- 1990** – Incorporated in the National Authority for Electric Power (RENEL), IRNE becomes the **Institute for Nuclear Research (ICN)**.
- 1992** – The Department for Fuel Elements Production separates from the Institute and becomes a distinct unit within RENEL, under the name of Nuclear Fuel Factory (FCN).
- 1992** – Beginning of the fuel conversion process at the TRIGA reactor.
- 1994** – The Institute specialists significantly contribute to the commissioning of Cernavoda NPP - Unit 1.
- 1995** – Commissioning at Cernavoda NPP-Unit 1 of the Failed Fuel Location System (SLCD), equipment entirely designed and manufactured by the Institute.
- 1996** – On April 16, the first criticality is attained at Cernavoda NPP-Unit 1, directly involving ICN specialists.
- 1998** – The ICN becomes **SCN**, a subsidiary of the Romanian Authority for Nuclear Activities (RAN), as an affiliate branch.
- 1999** – Return of spent fuel to the country of origin (USA).
- 2003 – 2005** – Testing and delivery of two Fuelling Machine Heads (F/M) at Cernavoda NPP – Unit 2.
- 2004** – 25th anniversary of the TRIGA reactor commissioning.
- 2006** – Completion of the TRIGA-SSR Reactor conversion from HEU fuel (Highly Enrich Uranium) to LEU fuel (Low Enriched Uranium).
- 2007, May** – First criticality of Cernavoda Unit 2 reactor; October, commercial operation; INR main contribution: F/M heads testing, Failed Fuel Location System.
- 2009** – HEU fuel return to Russia under a US DOE contract.
- 2010** – Completion of the main refurbishing of TRIGA Reactor.

