

# PHYSOR 2010

Pittsburgh



Advances in Reactor Physics to Power the Nuclear Renaissance

## Technical Program Booklet

May 9 – May 14, 2010  
Sheraton Station Square  
Pittsburgh, Pennsylvania, USA



## Registration

### Saturday, May 8, 2010

5:00 pm – 8:00 pm

### Sunday, May 9, 2010

6:30 am – 7:00 pm

### Monday, May 10 through Thursday May 13, 2010

7:00 am– 12:00 pm

## Conference Events

### Sunday, May 9, 2010

7:00 pm – 8:00 pm Welcoming Reception

*Reflections/Waterfront*

### Monday, May 10, 2010

6:30 pm Boarding  
7:00 pm Departs Dock  
9:30 pm Arrives Dock

#### **Conference Dinner Cruise aboard the Gateway Clipper**

The Gateway Clipper Fleet presents an experience that truly captures the personality of a great river city - Pittsburgh. A sightseeing cruise viewing many points of historic and current interest on the Monongahela, Allegheny and Ohio Rivers.

#### ***Gateway Clipper***

Directions:  
Exit Sheraton Square Hotel's main lobby and turn right. Go Straight and turn right at the Gateway Clipper Station Square Dock.

A photographer will be on duty if you would like to have your picture taken at a nominal fee. Photograph will be available for purchase at end of cruise.

## Tuesday, May 11, 2010

7:00 am – 5:00 pm **Exhibit** *Admiral*

Be sure to visit the PHYSOR Exhibit.

Meet our Exhibitors and learn more about the products and services they offer. The Exhibit Area will also feature a **complimentary continental breakfast** hosted by Westinghouse Electric Company from 7:00 am to 8:00 am

12:00 pm – 1:30 pm Conference Lunch *Reflections/Waterfront*

## Wednesday, May 12, 2010

8:00 am – 5:00 pm **Exhibit** *Admiral*

Be sure to visit the PHYSOR Exhibit Area.

Meet our Exhibitors and learn more about the products and services they offer. The Exhibit Area will also feature a **snack** hosted by Westinghouse Electric Company from 3:10 pm to 3:30 pm.

7:00 – 10:00 pm Conference Banquet *Grand Station  
Ballrooms 1&2*

## Thursday, May 13, 2010

12:00 pm – 1:30 pm Conference Lunch *Reflections/Waterfront*

## Friday, May 14, 2010

### Technical Tours

The PHYSOR 2010 committee has provided these tour opportunities to provide participants a glimpse of the nuclear power industry that exists in the Pittsburgh area, where the commercial nuclear power industry began with the Shippingport reactor startup in 1957.

The US Nuclear Regulatory Commission requires that we exclude some international participants based on the regulations in 10CFR810 related to the dissemination of nuclear technology to non-US Citizens, and the individual sites have requested information for their specific security procedures,

which you were asked to provide upon registration so that checking in at the facilities could be expedited upon your arrival.

**Dress Code:**

Both tours will be walking through industrial spaces, so there are some clothing restrictions which must be adhered to for your safety:

- No Open-toed or Open-backed shoes
- No shoes with heels
- No shorts
- When needed, helmets and safety glasses will be provided on-site

**Other Provisions:**

- No photography is allowed on either of these tours for security and commercial reasons
- Remain with your tour guide(s) at all times for your safety
- Be sure to bring your US driver's license or passport with you

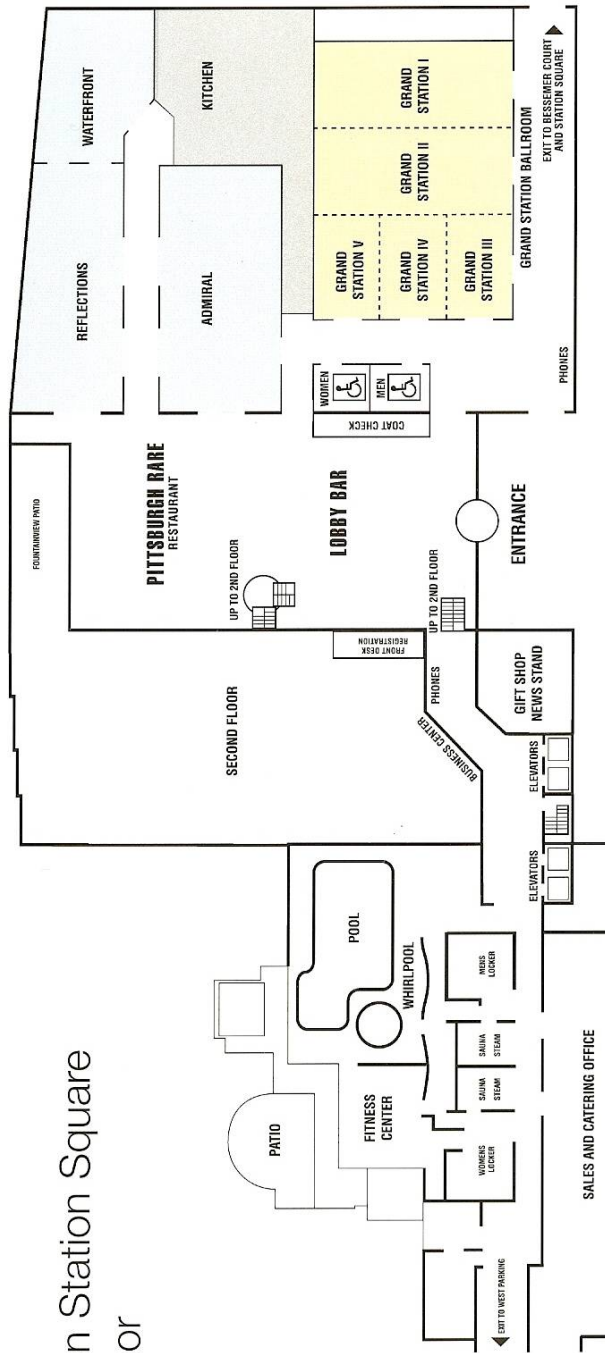
**Beaver Valley**

The Beaver Valley tour takes place at this historic location. For detailed information, see Friday's schedule.

**Waltz Mills and AP1000 Mockup Control Room**

Westinghouse tours provide participants a glimpse to some of the product and service technologies that Westinghouse provides to its customer base. For detailed information, see Friday's schedule.

# Sheraton Station Square First Floor



Program at a glance

		W O R K S H O P S			
		SUNDAY			FRIDAY
		Grand Station Ballroom 2	Grand Station Ballroom 3	Grand Station Ballroom 4	Grand Station Ballroom 5
8:00	Workshop #4 - AEGIS/SCOPE2 Core Analysis System	Workshop #2 - Analytical Benchmarking in Neutron Transport	Workshop #3 - SCALE 6 TRITON Lattice Physics	Workshop #1 - AP1000	Workshop #9 - PBMR
10:15	Workshop #4 - AEGIS/SCOPE2 Core Analysis System	Workshop #2 - Analytical Benchmarking in Neutron Transport	Coffee Break	Workshop #1 - AP1000	Workshop #9 - PBMR
10:30	Workshop #4 - AEGIS/SCOPE2 Core Analysis System	Workshop #2 - Analytical Benchmarking in Neutron Transport	Workshop #3 - SCALE 6 TRITON Lattice Physics	Workshop #1 - AP1000	Workshop #9 - PBMR
12:00	Workshop #8 - Reactor Physics Analysis with Monte Carlo	Workshop #6 - Transport Methods	Lunch Break	Workshop #5 - ABWR	Workshop #9 - PBMR
13:30	Workshop #8 - Reactor Physics Analysis with Monte Carlo	Workshop #6 - Transport Methods	Workshop #7 - PARCS Reactor Core Simulator	Workshop #5 - ABWR	Workshop #9 - PBMR
15:45	Workshop #8 - Reactor Physics Analysis with Monte Carlo	Workshop #6 - Transport Methods	Coffee Break	Workshop #5 - ABWR	Workshop #9 - PBMR

	Grand Station Ballroom 1	Grand Station Ballroom 2	Grand Station Ballroom 3	Grand Station Ballroom 4	Grand Station Ballroom 5
<b>MONDAY</b>					
8:30					
10:15					
10:45					
12:00					
	Coffee Break				
	Opening Plenary Session, continued				
	Lunch				
13:30	<b>10A</b> - Integral Experiments and Facilities for Safety Research - I	<b>4A</b> - Sub-critical System & Reactor Dynamic - I	<b>6B</b> - Minor Actinide Management	<b>2A</b> - Numerical Methods for Deterministic and Stochastic Transport	<b>1A</b> - Nuclear Data Measurements and Evaluations
15:10	Coffee Break				
15:30	<b>Panel</b> - Global Education & Training Needs in Nuclear Engineering & Reactor Physics	<b>4B</b> - Sub-critical System & Reactor Dynamic - II	<b>8A</b> - Three-dimensional Transient Analysis Methods - I	<b>2F</b> - Analytical Transport and Numerical Methods for The Diffusion Equation	<b>3B</b> - Monte Carlo Depletion and Propagation of Uncertainties
17:35	Adjourn				
19:00					
	River Cruise - Boarding Starts at 18:30				
<b>TUESDAY</b>					
8:00	<b>5C</b> - Advanced Reactor Designs	<b>4G</b> - Core Physics Methods - I	<b>4N</b> - Reactor Operation & Design	<b>3A</b> - Monte Carlo Source Convergence Acceleration, Issues and Applications	<b>2E</b> - Kinetic Transport Methods and Sensitivity Analysis Applications
10:05					
10:20	<b>8D</b> - Multi-Physics Reactor Simulations - I	<b>4H</b> - Core Physics Methods - II	<b>10B</b> - Integral Experiments and Facilities for Safety Research - II	<b>3C</b> - Calculation of Kinetics Parameters in Monte Carlo Codes	<b>2C</b> - Applications of Discontinuity Factors
12:00					
	Coffee Break				
	Conference Lunch				
	Guest Speaker: Dr. Donald E. DeJ, Chief Physicist, Naval Reactors, USA Department Of Energy				
13:30	<b>8E</b> - Multi-Physics Reactor Simulations - II	<b>4J</b> - Core Physics Methods - III	<b>10C</b> - Integral Experiments and Facilities for Safety Research - III	<b>1B</b> - Nuclear Data Libraries	<b>2B</b> - Acceleration Techniques for Deterministic Transport Methods
15:10	Coffee Break				
15:30	<b>8B</b> - Three-dimensional Transient Analysis Methods - II	<b>4K</b> - Core Physics Methods - IV	<b>9B</b> - Special Session on TRTR 2009 Meeting	<b>6A</b> - Thorium Fuel Cycle	<b>13A</b> - Nuclear Power and Sustainable Development

	Grand Station Ballroom 1	Grand Station Ballroom 2	Grand Station Ballroom 3	Grand Station Ballroom 4	Grand Station Ballroom 5
<b>WEDNESDAY</b>					
8:00	<b>3D</b> - Monte Carlo Methods - General I	<b>4C</b> - Lattice Physics Calculations: in Memory of Rudolf Stamm I - I	<b>7A</b> - Nuclear Criticality Safety - I	<b>5B</b> - Liquid Metal Fast Reactor Design & Analysis	<b>8F</b> - Multi-Physics Reactor Simulations - III
10:05	Coffee Break				
10:20	<b>11A</b> - Verification and Validation - I	<b>4D</b> - Lattice Physics Calculations: in Memory of Rudolf Stamm I - II	<b>6C</b> - Advanced and Fast Reactor Design	<b>1C</b> - Nuclear Data Testing and Validation - I	<b>8C</b> - Three-dimensional Transient Analysis Methods - III
12:00			Lunch		
13:30	<b>11B</b> - Verification and Validation - II	<b>4E</b> - Lattice Physics Calculations: in Memory of Rudolf Stamm I - III	<b>6E</b> - Transuranic Applications	<b>2G</b> - Parallel Algorithms and Applications	<b>9A</b> - Research Reactor Facilities and Benchmarking
15:10			Coffee Break		
15:30	<b>11C</b> - Standards and Benchmarks	<b>4F</b> - Computational Challenges of HTGRs	<b>6D</b> - Alternative Fuel Cycles	<b>9C</b> - Operational Support Analyses	<b>12A</b> - Radiation Applications & Nuclear Safeguards - I
17:35			Adjourn		
19:00			<b>Banquet</b> - Grand Station Ballroom Guest Speaker: Robert J. Buechel, Fuel Engineering Vice President, Westinghouse Electric Company		
<b>THURSDAY</b>					
8:00	<b>8G</b> - Developments in Probabilistic Risk Assessments	<b>4L</b> - Advances and Validation of Reactor Physics Tools - I	<b>7B</b> - Nuclear Criticality Safety - II	<b>5A</b> - Plant Improvements	<b>3E</b> - Monte Carlo Methods - General II
10:05			Coffee Break		
10:20	<b>11D</b> - Uncertainty Analysis in Modeling - I	<b>4M</b> - Advances and Validation of Reactor Physics Tools - II	<b>9E</b> - Physics Tests, Measurements and Evaluation	<b>5D</b> - Core Monitoring	<b>2D</b> - Validation of Computer Codes
12:00			<b>Conference Lunch</b>		
13:30	<b>11E</b> - Uncertainty Analysis in Modeling - II	Guest Speaker: Dr. Everett Redmond II, Senior Project Manager Used Fuel Storage and Transportation, Nuclear Energy Institute	<b>8H</b> - Safety Analysis and Thermal-Hydraulics	<b>2H</b> - Cross Section Collapsing & Cell/Assembly Calculations	
15:10			Coffee Break		
15:30	<b>12B</b> - Radiation Applications & Nuclear Safeguards - II	<b>4Q</b> - In-Core Fuel Management and Optimization II	<b>9D</b> - Accelerator and Spallation Physics	<b>1D</b> - Nuclear Data Testing and Validation - II	
<b>FRIDAY</b>			<b>TOURS</b>		
8:00			• Westinghouse - Waltz Mill Site Tour	• Beaver Valley Tour	
17:00					

## Saturday, May 8, 2010

5:00 pm – 8:00 pm Registration

## Sunday, May 9, 2010

6:30 am – 7:00 pm Registration

**Workshop #1**      **The AP1000 Reactor: Passive Safety Design and Core Design Characteristics**

**8:00 am – 12:00 pm**      ***Grand Station Ballroom 5***

*Chairs: Jim Winters and Bob Fetterman  
(Westinghouse)*

**Workshop #2**      **A Short Course on Analytical Benchmarking in Neutron Transport Theory**

**8:00 am – 12:00 pm**      ***Grand Station Ballroom 3***

*Chair: Barry D. Ganapol (University of Arizona)*

**Workshop #3**      **SCALE 6 TRITON Lattice Physics Code**

**8:00 am – 12:00 pm**      ***Grand Station Ballroom 4***

*Chairs: Matt Jessee, Jess Gehin, and Steve Bowman (Oak Ridge National Laboratory)*

**Workshop #4**      **AEGIS/SCOPE2: A Next Generation Core Analysis System**

**8:00 am – 12:00 pm**      ***Grand Station Ballroom 2***

*Chairs: Masahiro Tatsumi (NFI) and Akio Yamamoto (Nagoya University)*

**12:00 pm**      **Lunch Break**

**Sunday, May 9, 2010**

- Workshop #5**      **The Advanced Boiling Water Reactor (ABWR)**  
1:30 pm – 5:30 pm      *Grand Station Ballroom 5*  
*Chair: Juan Casal (Westinghouse)*
- Workshop #6**      **Transport Methods for Reactor Core Calculations**  
1:30 pm – 5:30 pm      *Grand Station Ballroom 3*  
*Chair: Richard Sanchez (CEA, Saclay)*
- Workshop #7**      **Workshop on the PARCS Reactor Core Simulator**  
1:30 pm – 5:30 pm      *Grand Station Ballroom 4*  
*Chair: Tom Downar (University of Michigan)*
- Workshop #8**      **Reactor Physics Analysis with Monte Carlo**  
1:30 pm – 5:30 pm      *Grand Station Ballroom 2*  
*Chair: Forrest Brown (LANL)*
- 7:00 pm – 8:00 pm**      **Welcoming Reception**  
*Reflections/Waterfront Room*

**MONDAY, May 10, 2010**

<b>8:30 am – Noon</b>	<b>Plenary Sessions</b> <i>Grand Station Ballroom 1&amp;2</i>
<b>8:30 am</b>	<b>Opening Remarks</b> <i>Honorary Conference Chair: Larry Foulke (University of Pittsburgh)</i>
<b>8:35 am</b>	<b><i>The Nuclear Renaissance – Is it real?</i></b> <i>Dr. Aris Candris, President &amp; CEO, Westinghouse Electric Company (USA)</i>
<b>9:20 am</b>	<b><i>Key Issues in the Future of Nuclear Power</i></b> <i>Bertrand Barre, Scientific Advisor, AREVA (France)</i>
<b>10:05 am – 10:30 am</b>	<b>Coffee Break</b> <i>Admiral</i>
<b>10:30 am</b>	<b><i>Future Advancements Needed in Reactor Technology</i></b> <i>Dan Pace, Senior Vice President, FirstEnergy Nuclear Operating Company (USA)</i>
<b>11:15 am</b>	<b><i>Most Significant Historical Advances in Reactor Physics Since CP-1</i></b> <i>Dr. Larry Foulke, Director of Nuclear Programs, University of Pittsburgh (USA)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Lunch Break</b>

**MONDAY, May 10, 2010**

<b>10A</b>	<b>Integral Experiments and Facilities for Safety Research – I</b>	
<b>1:30 pm - 3:10 pm</b>		<b><i>Grand Station Ballroom 1</i></b>
		<i>Chairs: Pierre D'hondt (SCKCEN, Belgium) and Frederik Reitsma (PBMR, South Africa)</i>
1:30 pm	Benchmark Evaluation of the Initial Isothermal Physics Measurements at the Fast Flux Test Facility	<b><i>John Bess (INL, USA)</i></b>
1:55 pm	Analysis of Core Physics Experiment on BWR 10x10 MOX Fuel Assemblies	<b><i>Toru Yamamoto, Y. Ando (JNESO, JAPAN), L. P. Hong (NAIS, Japan)</i></b>
2:20 pm	Experimental Validation of Reaction Rate Distributions in an SCWR-Like Fuel Lattice at PROTEUS	<b><i>Dominik Rätz, K. A. Jordan, M. F. Murphy, G. Perret and R. Chawla (PSI, Switzerland)</i></b>
2:45 pm	Triga Reaction Rate Benchmark	<b><i>L. Snoj, A. Trkov, G. Žerovnik, R. Jaćimović, P. Rogan, M. Ravnik (JSI, Slovenia)</i></b>
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

## MONDAY, May 10, 2010

<b>4A</b>	<b>Sub-critical System &amp; Reactor Dynamic – I</b>	
<b>1:30 pm – 3:10 pm</b>		<b><i>Grand Station Ballroom 2</i></b>
	<i>Chairs: M Sandra Dulla (University of Torino, Italy) and Imre Pázsit (Chalmers University of Technology, Sweden)</i>	
1:30 pm	Analysis of Photo-Neutron Physics During Moderator Event in a Deeply Sub-Critical CANDU Reactor <b><i>Jim V. Donnelly and A. Inglot (AMEC-NSS, Canada)</i></b>	
1:55 pm	Deterministic Calculation of the Effective Delayed Neutron Fraction without using the Adjoint Neutron Flux <b><i>A. Talamo, Y. Gohar, G. Aliberti, Z. Zhong (ANL, USA), V. Bournos, Y. Fokov, H. Kiyavitskaya, C. Routkovskaya, I. Serafimovich (JIPNR, Belarus)</i></b>	
2:20 pm	Neutron Noise Calculations using the Analytical Nodal Method <b><i>Viktor Larsson and Christophe Demaziere (Chalmers University of Technology, Sweden)</i></b>	
2:45 pm	Correction Methods for Reactivity Monitoring Techniques in Pulsed Neutron Source (PNS) Measurements <b><i>V. Bécares, D. Villamarín, M. Fernández-Ordóñez, E. M. González-Romero (NIU, Spain) and Y. Fokov (JIPNR, Belarus)</i></b>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

## MONDAY, May 10, 2010

<b>6B</b>	<b>Minor Actinide Management</b>	
<b>1:30 pm - 3:10 pm</b>		<b><i>Grand Station Ballroom 3</i></b>
		<i>Chairs: Ayodeji Alajo (Texas A&amp;M, USA) and Bojan Petrovic (Georgia Tech, USA)</i>
1:30 pm	Enhancing Advanced Candu Proliferation Resistance Fuel With Minor Actinides	<b><i>Gray S. Chang (INL, USA)</i></b>
1:55 pm	The Potential Of Pressurized Water Reactors For Recycle Of Americium-Curium	<b><i>G. M. Thomas &amp; K. W. Hesketh (NNL, UK)</i></b>
2:20 pm	Recycling of VVER Minor Actinides in a Gas-Cooled Fast Reactor	<b><i>Zoltan Perko, Sandor Feher (INT, Hungary), J. L. Kloosterman and S. Christie (DUT, Netherlands)</i></b>
2:45 pm	Investigation Of Direct Transmutation Of Actinides By Spallation Neutrons	<b><i>István Rovni, Máté Szieberth and Sándor Fehér (BUTE, Hungary)</i></b>
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

**MONDAY, May 10, 2010**

<b>2A</b>	<b>Numerical Methods for Deterministic and Stochastic Transport</b>	
<b>1:30 pm - 3:10pm</b>		<b><i>Grand Station Ballroom 4</i></b>
	<i>Chairs: Igor Zmijarevic (CEA, France) and Dmitriy Anistratov (NCSU, USA)</i>	
1:30 pm	Calculation of k-Eigenvalues and Multi-Group Eigenfunctions Using the Hybrid "Functional Monte Carlo" Method <b><i>Jinan Yang and Edward W. Larsen (University of Michigan, USA)</i></b>	
1:55 pm	A Raviart-Thomas-Schneider Implementation of the Simplified Pn Method in 3-D Hexagonal Geometry <b><i>Alain Hebert (Ecole Polytechnique de Montreal, Canada)</i></b>	
2:20 pm	A Low-order Quasidiffusion Discretization via Linear-Continuous Finite Elements on Unstructured Triangular Meshes <b><i>William A Wieselquist (PSI, Switzerland)</i></b>	
2:45 pm	The Wavelet Function Expansion Method for Solving the Neutron Transport Equation <b><i>Hongchun Wu, Liangzhi Cao, Youqi Zheng, Weiyang Yang (Xi'an Jiaotong University, China)</i></b>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

**MONDAY, May 10, 2010**

<b>1A</b>	<b>Nuclear Data Measurements and Evaluations</b>	
<b>1:30 pm – 3:10 pm</b>		<b>Grand Station Ballroom 5</b>
	<i>Chairs: Mike Zerkle (Bettis, USA) and Larry Mayhue (Westinghouse, USA)</i>	
1:30 pm	Sigma Web Interface For Reactor Data Applications	<b>Boris Pritychenko</b> and <b>A. A. Sonzogni</b> (BNL, USA)
1:55 pm	Proposal for Improvement Of The Resonance Cross Section Description	<b>Kostadin Ivanov</b> (Presenter) <i>N. Koyumdjieva, N. Janeva and A. A. Lukyanov (BAS, Bulgaria)</i>
2:20 pm	Commissioning of the n_TOF-Ph2 Facility	<b>Giuseppe Tagliente</b> (Presenter) <i>S. Andriamonje (CERN, Switzerland) et al</i>
2:45 pm	$^{235}\text{U}(n,f)$ Prompt Fission Neutron Spectra	<b>V. M. Maslov</b> , <b>N. A. Tetereva</b> (JINER, Belarus) <i>V. G. Pronyaev, A. B. Kagalenko, K. I. Zolotarev (IPPE, Russia), R. Capote (IAEA, Austria), T. Granier, B. Morillon (CEA, France), F. J. Hamsch (EU-JRC, Belgium), J. C. Sublet (UKAEA, UK)</i>
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

**MONDAY, May 10, 2010**

<b>Panel</b>	<b>Education and Training Needs in Nuclear Engineering and Reactor Physics</b>
<b>3:30 pm – 5:35 pm</b>	<b><i>Grand Station Ballroom 1</i></b> <i>Chair: Larry Foulke (University of Pittsburgh, USA)</i> <i>Carla Notari, Argentina</i> <i>Yung-An Chao, China</i> <i>Bertrand Barre, France</i> <i>Akio Yamamoto, Japan</i> <i>Nam-Zin Cho, Republic of Korea</i> <i>Joseph DeThomas, Middle East</i> <i>Oum Keltoum Bouhelal, Morocco</i> <i>Frederik Reitsma, South Africa</i> <i>Jack Brenizer, United States</i> <i>Michael Robinson (Moderator), United States</i>
<b>6:30 pm – 7:00 pm</b>	<b>Board the Gateway Clipper</b>
<b>7:00 pm – 9:30 pm</b>	<b>Conference Dinner and Riverboat Cruise</b>

## MONDAY, May 10, 2010

<b>4B</b>	<b>Sub-critical System &amp; Reactor Dynamic – II</b>
<b>3:30 pm - 5:35 pm</b>	<b><i>Grand Station Ballroom 2</i></b> <i>Chair: Sandra Dulla (University of Torino, Italy) and Imre Pázsit (Chalmers University of Technology, Sweden)</i>
3:30 pm	Numerical Solution of Reactor Kinetics Equation with Krylov Subspace Method for Matrix Exponential <i>Y. BAN, A. YAMAMOTO, Y. YAMANE (Nagoya University, Japan), Tomohiro ENDO (NFI, Japan)</i>
3:55 pm	Investigation of the Space-Dependent Noise Induced by Propagating Density Fluctuations <i>V. Dykin and I. Pázsit (Chalmers University of Technology, Sweden)</i>
4:20 pm	Reactor Kinetics, Dynamic Response and Neutron Noise in Molten Salt Reactors <i>I. Pázsit and A. Jonsson (Chalmers University of Technology, Sweden)</i>
4:45 pm	Fast Breeder Reactor Kinetics. A Direct Problem <i>Evgeny F. Seleznev</i>
5:10 pm	Fast Breeder Reactor Kinetics. An Inverse Problem <i>E. F. Seleznev, A. A. Belov and A. A. Mushkaterov (IBRAE, Russia), I. P. Matveenko, A. M. Zhukov and K. F. Raskach (IPPE, Russia)</i>
<b>6:30 pm – 7:00 pm</b>	<b>Board the Gateway Clipper</b>
<b>7:00 pm – 9:30 pm</b>	<b>Conference Dinner and Riverboat Cruise</b>

## MONDAY, May 10, 2010

<b>8A</b>	<b>Three-dimensional Transient Analysis Methods – I</b>
<b>3:30 pm – 5:35 pm</b>	<b><i>Grand Station Ballroom 3</i></b> <i>Chairs: J Gerardo M Grandi (Studsvik, USA) and Martin Zimmermann (PSI, Switzerland)</i>
3:30 pm	ABWR Start-Up Test Analysis With Transient Code POLCA-T <i>Kazuki Yano, Yamato Hayashi (Toshiba, Japan) and Kenichi Harada (Chubu Electric Power Co., Japan)</i>
3:55 pm	Peach Bottom 2 Turbine Test 2 Simulation By TRACE-S3K Coupled Code <i>K. Nikitin (PSI, Switzerland), J. Judd, G. M. Grandi (Studsvik, USA), A. Manera and H. Ferroukhi (PSI, Switzerland)</i>
4:20 pm	Modeling of VVER-1000 Partial Trip with Kinetic Codes <i>A. I. Zhukov, A. M. Abdullayev and S. V. Maryokhin (NSC, Ukraine)</i>
4:45 pm	Benchmarking of Transient Codes against Cycle 19 Stability Measurements at Leibstadt Nuclear Power Plant (KKL) <i>Carlos Aguirre (Kernkraftwerk Leibstadt AG, Switzerland) et al.</i>
5:10 pm	Experimental Orthogonal Functions For The Qualification Of BWR Stability Events <i>T. Barrachina, R. Miró, G. Verdú and D. Ginestar (UPV, Spain)</i>
<b>6:30 pm – 7:00 pm</b>	<b>Board the Gateway Clipper</b>
<b>7:00 pm – 9:30 pm</b>	<b>Conference Dinner and Riverboat Cruise</b>

## MONDAY, May 10, 2010

- 2F Analytical Transport and Numerical Methods for The Diffusion Equation**
- 3:30 pm - 5:35 pm** ***Grand Station Ballroom 4***  
*Chairs: Farzad Rahnema (GATech, USA) and Ricardo Carvalho de Barros (Univ. Rio de Janeiro, Brazil)*
- 3:30 pm On The Order Of Spherical Harmonics Approximation For The Neutron Transport Equation  
***Haileyesus Tsige-Tamirat (European Commission, Netherlands)***
- 3:55 pm An Analytical Spatial Reconstruction Scheme For The Spectral Diamond – Spectral Green’S Function – Constant Nodal Method For One-Speed X,Y-Geometry Sn Eigenvalue Problems  
***W. A. Menezes, H. A. Filho, R. C. Barros (UERJ, Brazil) and D. S. Dominguez (UESC, Brazil)***
- 4:20 pm Analytic Basis Function Expansion Nodal Method For Neutron Diffusion Equations In Triangular Geometry  
***K. WANG, H. WU and L. CAO (Xi’an Jiaotong University, China)***
- 4:45 pm A 2D Triangular NODAL-SP3 Method for Solving Neutron Transport Equation  
***Y. Li, H. Wu, L. Cao and Qichang Chen (Xi’an Jiaotong University, China)***
- 5:10 pm Analytic Basis Function Expansion Method for Neutron Diffusion Calculation in the Arbitrary Triangular Nodes  
***WANG Kunpeng (Presenter)***  
***H. Lu, H. Hao (CNPTRI, China) and H. Wu (Xi’an Jiaotong University, China)***
- 6:30 pm – 7:00 pm Board the Gateway Clipper**
- 7:00 pm – 9:30 pm Conference Dinner and Riverboat Cruise**

## MONDAY, May 10, 2010

<b>3B</b>	<b>Monte Carlo Depletion and Propagation of Uncertainties</b>
<b>3:30 pm – 5:35 pm</b>	<b><i>Grand Station Ballroom 5</i></b> <i>Chairs: Joachim Miss (IRSN, France) and Vefa Kucukboyaci (Westinghouse, USA)</i>
3:30 pm	Statistical Implications in Monte Carlo Depletions <i>Z. Xu, J. Rhodes and K. Smith (Studsvik Scandpower, USA)</i>
3:55 pm	Validating The VESTA Monte Carlo Depletion Interface Using ARIANE Chemical Assay Data For Pressurized Water Reactor Applications <i>L. Cousin, W. Haeck, B. Cochet (IRSN, France)</i>
4:20 pm	In-Line Xenon Convergence Algorithm for Monte Carlo Reactor Calculations <i>David P Griesheimer (Bettis Atomic Power Laboratory, USA)</i>
4:45 pm	The Log Linear Rate Constant Power Depletion Method <i>D. C. Carpenter and J. H. Wolf III (Bettis Atomic Power Laboratory, USA)</i>
5:10 pm	MC21 Monte Carlo Analysis Of The Hoogenboom-Martin Full-Core PWR Benchmark Problem <i>D. J. Kelly, T. M. Sutton, T. H. Trumbull, and P. S. Dobreff (Knolls Atomic Power Laboratory, USA)</i>
<b>6:30 pm – 7:00 pm</b>	<b>Board the Gateway Clipper</b>
<b>7:00 pm – 9:30 pm</b>	<b>Conference Dinner and Riverboat Cruise</b>

<b>5C</b>	<b>Advanced Reactor Designs</b>	
<b>8:00 am – 10:05 am</b>		<b>Grand Station Ballroom 1</b>
	<i>Chairs: F. Damian (CEA, France) and Guy Marleau (EPM, Canada)</i>	
8:00 am	Macroscopic Cross-Sections Of Neutron Radiation Capture By Pb-208, U-238 And Tc-99 Nuclides In The Accelerator Driven Subcritical Core Cooled With Molten Pb-208 <b>Kirill Fedorovich Raskach</b> <i>Georgy L. Khorasanov and Anatoly I. Blokhin (IPPE, Russia)</i>	
8:25 am	Research of Pb208 Coolant in Thorium-based Long Life Reactor <b>G. YU, K. WANG</b> ( <i>Tsinghua University, China</i> )	
8:50 am	High Performance Fast Reactor Cores Employing Deuteride Moderators <b>Tsugio Yokoyama</b> ( <i>Toshiba, Japan</i> ), <b>Toshio Wakabayashi</b> ( <i>Tohoku University, Japan</i> )	
9:15 am	Neutronic Analysis Of Water-Steam Injection Accidents For Generation IV Gas-Cooled Fast Reactors <b>G. Girardin</b> ( <i>EPFL, Switzerland</i> ), <b>A. Epiney, K. Mikityuk</b> ( <i>PSI, Switzerland</i> ), <b>R. Chawla</b> ( <i>EPFL, Switzerland</i> )	
9:40 am	Core Design Optimisation In Advanced Heavy Water Reactor For Achieving Self-Sustenance In 233U <b>N. Prasad, A. Kumar, P. D. Krishnani and R. K. Sinha</b> ( <i>Bhabha Atomic Research Center, India</i> )	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>4G</b>	<b>Core Physics Methods – I</b>	
<b>8:00 am – 10:05 am</b>		<b><i>Grand Station Ballroom 2</i></b>
	<i>Chairs: Yung-An Chao (Westinghouse, USA) and Akio Yamamoto (Nagoya University, Japan)</i>	
8:00 am	Improved Reflector Modeling for LWR Analysis <b><i>D. Colameco (PSU, USA), M. Ouisloumen, L. T. Mayhue (Westinghouse, USA), K. N. Ivanov (PSU, USA)</i></b>	
8:25 am	Analysis of Cold Critical Experiments by a Pin-by-Pin Core Analysis Method Using a Three-Dimensional Direct Response Matrix <b><i>T. Mitsuyasu, K. Ishii, T. Hino and M. Aoyama (Hitachi, Japan)</i></b>	
8:50 am	Group Decoupled Multi-Group Pin Power Reconstruction Utilizing Nodal Solution 1D Flux Profiles <b><i>L. Yu, D. Lu, S. Zhang and Y. A. Chao (Shanghai Jiao Tong University, China)</i></b>	
9:15 am	Accuracy Enhancements of the Coarse-Mesh Diffusion Core Model QUABBOX/CUBBOX for Highly Heterogeneous Core Configurations <b><i>M. Klein, I. Pasichnyk, A. Pautz, K. Velkov, W. Zwermann (GRS mbH, Germany)</i></b>	
9:40 am	An Alternative Solver for the Nodal Expansion Method Equations <b><i>F. C. da Silva, A. C. Marques Alvim and A. S. Martinez (COPPE/UFRJ, Brazil)</i></b>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>4N</b>	<b>Reactor Operation &amp; Design</b>	
<b>8:00 am – 10:05 am</b>		<b>Grand Station Ballroom 3</b>
	<i>Chairs: Dan Illas (ORNL, USA) and Cenk Güler (Westinghouse, USA)</i>	
8:00 am	Shielding Fuel Assemblies Used to Protect the Beltline Weld of the Reactor Pressure Vessel from Fast Neutron Radiation in Ringhals Unit 3 And 4 <i>U. Sandberg, H. Nylén, J. Roudén and P. Efsing (Ringhals AB, Sweden)</i>	
8:25 am	A Method for Channel-Bow Indication by Neutron Flux Measurements <i>John Loberg, Michael Österlund (Uppsala University, Sweden), Klaes-Håkan Beijmer, Jan Blomgren (Vattenfall, Sweden)</i>	
8:50 am	Development of an Efficient Pentran Model for Neutron Flux Simulation of the UFTR Shield Tank <i>A. D. Patel and A. Haghighat (University of Florida, USA)</i>	
9:15 am	Preliminary Feasibility Study of a Water Space Reactor with an Innovative Reactivity Control System <i>V. Memoli, A. Bigoni, A. Cammi, M. Colombo (Politecnico di Milano, Italy)</i>	
9:40 am	Analysis of Accuracy of Reactivity Balance Components in BN-600 Power Fast Reactor <i>A. V. Moiseev, Y. S. Khomyakov, M. Y. Semenov, A. S. Seregin, A.M. Tsiboulya (IPPE, Russia)</i> <i>V. A. Zheltyshev, V. V. Maltsev (BNPP, Russia)</i> <i>E. F. Seleznev, A. A. Belov (IBRAE, Russia)</i> <i>S.B. Belov, M.R. Farakshin, B.A. Vasiliev (OKBM, Russia)</i>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>3A</b>	<b>Monte Carlo Source Convergence Acceleration, Issues and Applications</b>	
<b>8:00 am – 10:05 am</b>		<b><i>Grand Station Ballroom 4</i></b>
	<i>Chairs: David Griesheimer (Bettis, USA) and Russ Mosteller (LANL, USA)</i>	
8:00 am	Investigation of CMFD Accelerated Monte Carlo Eigenvalue Calculation with Simplified Low Dimensional Multigroup Formulation <b><i>M. J. Lee, H. G. Joo (SNU, Korea), D. Lee and K. Smith (Studsvik Scandpower, USA)</i></b>	
8:25 am	Refinement Of Monte Carlo Anchoring Method Tested On Continuous-Energy Loosely-Coupled Fissile Problems <b><i>Sunghwan Yun and Nam Zin Cho (KAIST, Korea)</i></b>	
8:50 am	Investigation of the Entropy-Based Convergence Diagnostics in MCNP5 using the OECD/NEA Fuel Storage Pool Benchmark Problem <b><i>Bo Shi and Bojan Petrovic (Georgia Institute of Technology, USA)</i></b>	
9:15 am	Analysis Of The Higher Mode Eigenfunction Calculation Using Modified Power Iteration Method <b><i>Bo Shi and Bojan Petrovic (Georgia Institute of Technology, USA)</i></b>	
9:40 am	A Hybrid Source-Driven Method To Compute Fast Neutron Fluence In Reactor Pressure Vessel <b><i>Ren-Tai Chiang (AREVA, USA)</i></b>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>2E</b>	<b>Kinetic Transport Methods and Sensitivity Analysis Applications</b>	
<b>8:00 am – 10:05 am</b>		<b><i>Grand Station Ballroom 5</i></b>
		<i>Chairs: Robert Roy (EPM, Canada) and Piero Ravetto (Politecnici Di Torino, Italy)</i>
8:00 am	Deriving a Modified Asymptotic Telegrapher's Equation ( $\$P\_1\$$ ) Approximation	<b><i>Shay I. Heizler (Bar-Ilan University, Israel)</i></b>
8:25 am	Spatial And Time-Dependent Reactor Kinetics Methodology Based On The Method Of Characteristics	<b><i>X. Yang (Purdue University, USA) and T. Jevremovic (The University of Utah, USA)</i></b>
8:50 am	A Hybrid Transport-Point Kinetic Method For The Analysis Of Source Transients In Subcritical Systems	<b><i>P. Picca, B. D. Ganapol, R. Furfaro (University of Arizona, USA)</i></b>
9:15 am	Application Of Artificial Neural Networks To Infer Subcriticality Level Through Kinetic Models	<b><i>P. Picca, R. Furfaro, B. D. Ganapol (University of Arizona, USA, Dulla and Ravetto (Politecnico di Torino, Italy)</i></b>
9:40 am	Adjoint Based Error Measures For Functional Defect Correction In Deterministic Neutron Transport Applications	<b><i>S. R. Merton and C. C. Pain (Imperial College London, UK)</i></b>
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>8D</b>	<b>Multi-Physics Reactor Simulations - I</b>
<b>10:20 am – 12:00 pm</b>	<b>Grand Station Ballroom 1</b> <i>Chairs: Tom Downar (University of Michigan, USA) and Carlo Parisi (University of Pisa, Italy)</i>
10:20 am	HEMERA: A 3D Computational Tool For Analysis Of Accidental Transients <i>M. Clergeau, F. Dubois, B. Normand and A. Sargeni (IRSN, France)</i>
10:45 am	Effect of CASMO-5 Cross-section Data and Doppler Temperature Definitions on LWR Reactivity Initiated Accidents <i>G. Grandi, K. Smith, Z. Xu and J. Rhodes (Studsvik Scandpower, USA)</i>
11:10 am	Stress analysis of coated particle fuel in the Deep-Burn pebble bed reactor design <i>B. Boer and A. M. Ougouag (INL, USA)</i>
11:35 am	Consistent Comparison of Full Core PWR CEA with the Method Of Characteristic Code DeCART and the Coarse Mesh Nodal Code PARCS <i>M. Hursin, T. J. Downar and B. Kochunas (University of California at Berkeley, USA)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Jim Colletti (Bettis, USA)</i>  <b>From Boltzmann to FORD Evolution of Reactor Physics and the Naval Reactors Program</b> <i>Dr. Don Dei (US Department of Energy)</i>

<b>4H</b>	<b>Core Physics Methods – II</b>
<b>10:20 am - 12:00 pm</b>	<b>Grand Station Ballroom 2</b> <i>Chairs: Ronald J. Ellis (ORNL, USA) and Rakesh Chawla (EPFL, Switzerland)</i>
10:20 am	A New Robust Cross Section Representation Methodology for PWR Core Simulator <i>D. Sato, S. Tsubota, K. Yamaji, H. Koike, H. Matsumoto (MHI, Japan) and Akio Yamamoto (Nagoya University, Japan)</i>
10:45 am	Improving Cross Sections Via Spectral Rehomogenization <i>Aldo Dall’Osso and Daniele Tomatis (AREVA, France) and Yun Du (ENSMP, France)</i>
11:10 am	Investigation on Macroscopic Cross Section Model for BWR Pin-By-Pin Core Analysis <i>T. FUJITA, K. TADA, A. YAMAMOTO, Y. YAMANE (Nagoya University, Japan), S. KOSAKA and G. HIRANO (TEPCO, Japan)</i>
11:35 am	Homogenization of Cross Sections and Related Performance Improvements in PWR Burnup using the PENBURN/PENTRAN Burnup Sequence <i>K. Manalo, R. Cerge, D. Wegner, and G. Sjoden (University of Florida, USA)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Jim Colletti (Bettis, USA)</i>  <b>From Boltzmann to FORD Evolution of Reactor Physics and the Naval Reactors Program</b> <i>Dr. Don Dei (US Department of Energy)</i>

<b>10B</b>	<b>Integral Experiments and Facilities for Safety Research - II</b>
<b>10:20 am - 12:00 pm</b>	<b>Grand Station Ballroom 3</b> <i>Chairs: Toshikazu Takeda (University of Fukui, Japan) and Frederik Reitsma (PBMR, South Africa)</i>
10:20 am	An Improved Benchmark Model for the BIG TEN Critical Assembly <b>Russell D Mosteller (LANL, USA)</b>
10:45 am	A Solution for the Telegrapher's Equation with External Source: Application to YALINA - SC3A and SC3B <b>B. Merk, V. Glivici-Cotruta, and F. P. Weiß (Forschungszentrum Dresden-Rossendorf, Germany)</b>
11:10 am	Subcriticality Measurement by the Imaginary Source Multiplication Method with Multi-Detectors <b>S. Kawaguchi, T. Misawa, C. H. Pyeon And S. Shiroya (Kyoto University, Japan)</b>
11:35 am	Benchmark-Experiments with HEU and Tungsten at FKBN-2 Facility performed in RFNC-VNIITF <b>A. V. Dubina, V. D. Lyutov, A. V. Serikov, Y. A. Sokolov, V. M. Shmakov (RFNC-VNIITF, Russia)</b>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Jim Colletti (Bettis, USA)</i>  <b>From Boltzmann to FORD Evolution of Reactor Physics and the Naval Reactors Program</b> <i>Dr. Don Dei (US Department of Energy)</i>

<b>3C</b>	<b>Calculation of Kinetics Parameters in Monte Carlo Codes</b>
<b>10:20 am - 12:00 pm</b>	<b>Grand Station Ballroom 4</b> <i>Chairs: Forrest Brown (LANL, USA) and Cenk Güler (Westinghouse, USA)</i>
10:20 am	Calculating Kinetics Parameters and Reactivity Changes with Continuous-Energy Monte Carlo <b>B. Kiedrowski, F. Brown (LANL, USA) and P. Wilson (University of Wisconsin-Madison, USA)</b>
10:45 am	Calculating the Kinetics Parameters in the Continuous Energy Monte Carlo Code MORET <b>A. Jinaphanh, J. Miss, Y. Richet and O. Jacquet (IRSN, France)</b>
11:10 am	Estimation Of Adjoint-Weighted Kinetics Parameters In Monte Carlo Forward Calculations <b>Hyung Jin Shim and Chang Hyo Kim (SNU, Korea) and Yonghee Kim (UNIST, Korea)</b>
11:35 am	An Experience of Applying Iterated Fission Probability Method to Calculation of Effective Kinetics Parameters and $k_{\text{eff}}$ Sensitivities with Monte Carlo <b>K. F. Raskach and A. A. Blyskavka ( IPPE, Russia)</b>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Jim Colletti (Bettis, USA)</i>  <b>From Boltzmann to FORD Evolution of Reactor Physics and the Naval Reactors Program</b> <i>Dr. Don Dei (US Department of Energy)</i>

<b>2C</b>	<b>Applications of Discontinuity Factors</b>
<b>10:20 am - 12:00 pm</b>	<b><i>Grand Station Ballroom V</i></b> <i>Chairs: Akio Yamamoto (Nagoya University, Japan) and Kord Smith (Studsvik, USA)</i>
10:20 am	Pin Cell Discontinuity Factors in Transient 3-D Discrete Ordinates Code TORT-TD <b><i>Armin Seubert (GRS mbH, Germany)</i></b>
10:45 am	Linear Discontinuous (LD) Coefficients in the Slice Balance Approach (SBA) Mathematical Framework for the Discrete Ordinates Code Jaguar <b><i>R. A. Kennedy (The Ohio State University, USA), A. M. Watson and R. E. Grove (KAPL, USA)</i></b>
11:10 am	Utilization of Discontinuity Factor in Integro-differential Type of Boltzmann Transport Equation <b><i>Akio Yamamoto (Nagoya University, Japan)</i></b>
11:35 am	Angular Flux Discontinuity Factors For Reactor Core Transport Calculation <b><i>Zhihong Liu</i></b> <i>Xu Hong, Hu Yongming (SNPT R&amp;D Center, China) and Zhou Zhiwei (Tsinghua University, China)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b><i>Reflections/Waterfront</i></b>  <b>Introduction</b> <i>General Conference Co-Chair: Jim Colletti (Bettis, USA)</i>  <b>From Boltzmann to FORD Evolution of Reactor Physics and the Naval Reactors Program</b> <i>Dr. Don Dei (US Department of Energy)</i>

<b>8E</b>	<b>Multi-Physics Reactor Simulations – II</b>	
<b>1:30 pm - 3:10pm</b>		<b><i>Grand Station Ballroom I</i></b>
		<i>Chairs: Maria Avramova (PSU, USA) and Yann P�erin (GRS, Germany)</i>
1:30 pm	Prototype Coupling Of The CFD Software ANSYS CFX With The 3D Neutron Kinetic Core Model DYN3D <i>S. Kliem, U. Rohde (Forschungszentrum Dresden-Rossendorf, Germany), J. Sch�tze and Th. Frank (ANSYS Germany GmbH, Germany)</i>	
1:55 pm	New Developments Of The MCNP/CTF/NEM/NJOY Code System – Monte Carlo Based Coupled Code For High Accuracy Modeling <i>F. P. Espel, M. N. Avramova, K. N. Ivanov (PSU, USA) and Stefan Misu (AREVA NP GmbH, Germany)</i>	
2:20 pm	Implicit Time-Integration Method for Simultaneous Solution of a Coupled Non-Linear System <i>Justin K. Watson and Kostadin N. Ivanov (PSU, USA)</i>	
2:45 pm	Bond Graph Based Coupled Reactor Simulations <i>E. Sosnovsky, B. Forget (MIT, USA) and Christopher Newman (INL, USA)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>4J</b>	<b>Core Physics Methods - III</b>	
<b>1:30 pm – 3:10 pm</b>		<b>Grand Station Ballroom 2</b>
	<i>Chairs: Bojan Petrovic (Georgia Technology University, USA) and Yung-An Chao (Westinghouse, China)</i>	
1:30 pm	Development of Iterative Transport - Diffusion Methodology for LWR Analysis <i>D. R. Roberts (PSU, USA), M. Ouisloumen, V. N. Kucukboyaci (Westinghouse, USA) and K. N. Ivanov (PSU, USA)</i>	
1:55 pm	A Comparison between Nodal Expansion Method and Nodal Green's Function Method <i>WANG Deng-ying, LI Fu, HU Yong-ming, GUO Jiong, WEI Jin-Feng, Zhang Jing-yu (Tsinghua University, China)</i>	
2:20 pm	Mixed Energy Reactor Simulations using the Discrete Generalized Multigroup Method <i>Benoit Forget and Lei Zhu (MIT, USA)</i>	
2:45 pm	Development of the Triangular Nodal Method TRIPEN for Prismatic HTR Analysis <i>Brendan Kochunas, Yunlin Xu and Thomas Downar (University of Michigan, USA)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>10C</b>	<b>Integral Experiments and Facilities for Safety Research – III</b>	
<b>1:30 pm - 3:10 pm</b>		<b>Grand Station Ballroom 3</b>
	<i>Chairs: David Nigg (INL, USA) and Jim Kuijper (NRG, Netherlands)</i>	
1:30 pm	Spectral Indices of the IPEN/MB-01 Reactor: A Nuclear Data Validation <b>Adimir dos Santos</b> and <b>Leda C. C. B. Fanaro</b> <i>(IPEN/CNEN-SP, Brazil)</i>	
1:55 pm	Power Distribution Gradients in WWER-440 Standard and Low Leakage Type Cores with Possible Influence on Fuel Failure <b>Ján Martin Mikuš</b> <i>(Research Centre Řež Ltd., Czech Republic)</i>	
2:20 pm	Status of ERANOS-2 Code System Validation for Sodium Fast Reactor Applications <b>Jean-François Vidal</b> <i>(Presenter)</i> <i>J. Tommasi, J.F. Lebrat, P. Archier and J.M. Ruggieri (CEA, France)</i>	
2:45 pm	Sodium Void Validation with ERANOS on Zero Power Facility Experiments <b>Patrick Blaise</b> <i>(CEA)</i> <i>J. Tommasi, P. Archier and J. M. Ruggieri (CEA, France)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>1B</b>	<b>Nuclear Data Libraries</b>	
<b>1:30 pm – 2:45 pm</b>		<b>Grand Station Ballroom 4</b>
	<i>Chairs: Dimitri Rochman (NRG, Netherlands) and Mike Zerkle (Bettis, USA)</i>	
1:30 pm	TENDL-2009: Comprehensive Nuclear Data Library With Covariances	
	<i><b>D. Rochman</b> and <b>A.J. Koning</b> (NRG, Netherlands)</i>	
1:55 pm	PARAGON Library With 4.0 eV Upscattering Cut-Off	
	<i><b>V. N. Kucukboyaci</b>, <b>H. C. Huria</b>, and <b>M. Ouisloumen</b> (Westinghouse, USA)</i>	
2:20 pm	ENDF/B-VII.0 Based Library for PARAGON	
	<i><b>H. C. Huria</b>, <b>V. N. Kucukboyaci</b>, and <b>M.</b> <b>Ouisloumen</b> (Westinghouse, USA)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>2B</b>	<b>Acceleration Techniques for Deterministic Transport Methods</b>	
<b>1:30 pm - 3:10 pm</b>		<b>Grand Station Ballroom 5</b>
	<i>Chairs: Richard Sanchez (CEA, France) and Bill Martin (University of Michigan, USA)</i>	
1:30 pm	Nonlinear Acceleration Methods for Even-Parity Neutron Transport <i>W. J. Martin C.R.E. de Oliveira (University of New Mexico, USA) and H. Park (INL, USA)</i>	
1:55 pm	Acceleration Technique Using Krylov Subspace Methods for 2D Arbitrary Geometry Characteristics Solver <i>Hongbo Zhang, Hongchun Wu, and Liangzhi Cao (Xi'an Jiaotong University, USA)</i>	
2:20 pm	Generalized Coarse-Mesh Finite Difference Acceleration For The Method Of Characteristics <i>Xiaoming Chai, Dong Yao (National Key Laboratory of Science and Technology, China) and Kan Wang (Tsinghua University, China)</i>	
2:45 pm	3D Coarse Mesh NEM Embedded with 2D Fine Mesh NDOM for PWR Core Analysis <i>Shengyi Si (SNERDI, China)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>8B</b>	<b>Three-dimensional Transient Analysis Methods – II</b>
<b>3:30 pm - 5:35 pm</b>	<b><i>Grand Station Ballroom 1</i></b> <i>Chairs: Serhat Lider (Westinghouse, USA) and Soeren Kliem (Forschungszentrum Dresden- Rossendorf, Germany)</i>
3:30 pm	BWR-Stability: Analysis of Cladding Temperature for High Amplitude Oscillations <b><i>P. Pohl and F. Wehle (AREVA NP, Germany)</i></b>
3:55 pm	Validation Of ARCADIA® Transient Model With Rod Drop Test Benchmarking <b><i>S. Zheng (AREVA NP, France) and K. Segard (AREVA NP, USA)</i></b>
4:20 pm	Sensitivity Studies For The Main Steam Line Break In The Loviisa NPP With The HEXTRAN- SMABRE <b><i>S. Elina and H. Anitta (VTT Technical Research Center of Finland, Finland)</i></b>
4:45 pm	Rod Ejection Accident 3D-Dynamic Analysis In Trillo NPP With RELAP5/PARCS V2.7 <b><i>T. Barrachina, R. Miró, G. Verdú (Universitat Politécnica de València, Spain), A. Ortego (IBERINCO, Spain) and J. C. Martínez-Murillo (Almaraz-Trillo AIE, Spain)</i></b>
5:10 pm	Fast Transient Evaluation Of Rod Ejection In VVER-1000 Core <b><i>S. M. Aletaha and Ali Pazirandeh (Islamic Azad University, Iran)</i></b>

<b>4K</b>	<b>Core Physics Methods – IV</b>
<b>3:30 pm - 5:35 pm</b>	<b><i>Grand Station Ballroom 2</i></b>
	<i>Chairs: Rakesh Chawla (EPFL, Switzerland) and Bojan Petrovic (Georgia Technology University, USA)</i>
3:30 pm	3D Finite Element Method for the Lambda Modes Problem in Hexagonal-Z Geometry <b><i>S. González-Pintor, G. Verdú and D. Ginestar</i></b> <i>(Universidad Politécnica de Valencia, Spain)</i>
3:55 pm	Effect of Void Dependent Reactivity Modeling Bias on BWR Axial Power Tilt <b><i>Y. Han, C. Tang, S. Zhang and Y. A. Chao</i></b> <i>(Shanghai Jiao Tong University, China)</i>
4:20 pm	Generalized Equivalence Theory for Checkerboard Configurations in Natural-Uranium CANDU Lattices <b><i>Eleodor M. Nichita</i></b> <i>(University of Ontario, Canada)</i>
4:45 pm	A Response Matrix Method for Improved Modeling of Neutron Streaming in Large Control Rod Channels of VHTR Cores <b><i>Yeon Sang Jung, Changho Lee, and Won Sik Yang</i></b> <i>(ANL, USA)</i>
5:10 pm	The Possibility to Online Reconstruct the HTR In-Core Power Distribution <b><i>Fu LI, Xuhua ZHOU, Jiong GUO, Dengying WANG, Jinfeng WEI, Jingyu ZHANG, Chen HAO</i></b> <i>(Tsinghua University, China)</i>



<b>6A</b>	<b>Thorium Fuel Cycle</b>
<b>3:30 pm - 5:35 pm</b>	<b>Grand Station Ballroom 4</b> <i>Chairs: Moussa Mahgerefteh (Exelon Nuclear, USA) and Kevin Hesketh (UK National Laboratory, UK)</i>
3:30 pm	Implementation Strategy of Thorium Fuel Cycle <b>Takashi Kamei</b> ( <i>Kyoto University, Japan</i> )
3:55 pm	Roadmap Design for Thorium-Uranium Breeding Recycle in PWR <b>Shengyi Si</b> ( <i>SNERDI, China</i> )
4:20 pm	Thorium Fuel Utilization in the BWR: Lattice Physics Analysis of Reactivity Coefficients <b>Andrew M. Ward, Volkan Seker, Benjamin S. Collins, Thomas J. Downar</b> ( <i>University of Michigan, USA</i> )
4:45 pm	Feasibility and Desirability of Employing the Thorium Fuel Cycle for Power Generation <b>Tomasz Kozlowsky</b> ( <i>Presenter</i> ) <b>Bal Raj Sehgal</b> ( <i>Royal Institute of Technology, Sweden</i> )
5:10 pm	Power Flattening for Sodium Cooled Metallic Fuel CANDLE Reactor by Adding Thorium in Inner Core <b>Hiroshi SEKIMOTO, Sinsuke NAKAYAMA, Hiroshi TAGUCHI and Tsuyoshi OHKAWA</b> ( <i>Tokyo Institute of Technology, Japan</i> )

<b>13A</b>	<b>Nuclear Power and Sustainable Development</b>
<b>3:30 pm - 5:10 pm</b>	<b><i>Grand Station Ballroom 5</i></b>
	<i>Chairs: Kevin W. Hesketh (UK National Nuclear Lab, UK) and Kenneth W. Burn (ENEA, Italy)</i>
3:30 pm	A United Kingdom Nuclear Fuel Cycle Scenario Assessment <b><i>Kevin Hesketh</i></b> (Presenter) <i>Robert Gregg (The United Kingdom National Nuclear Laboratory, UK)</i>
3:55 pm	Multi Criteria Analysis for the Long Term Planning of the Mexican Electrical System Expansion <b><i>Cecilia Martin-del-Campo</i></b> (Presenter) <i>Rodrigo Guadarrama and Juan Luis François (Universidad Nacional Autónoma de México, Mexico)</i>
4:20 pm	Brazilian Nuclear Renaissance in a Sustainable Development Scenario <b><i>M. S. Dias and J. R. L. Mattos</i></b> (CNEN, Brazil)
4:45 pm	The Status and Prospect of Nuclear Power Development in China <i>Tianmin Xin and Daiyong SONG (CNPE, China)</i>

<b>3D</b>	<b>Monte Carlo Methods - General I</b>	
<b>8:00 am – 10:05 am</b>		<b><i>Grand Station Ballroom 1</i></b>
	<i>Chairs: Tom Sutton (KAPL, USA) and Roger Martz (LANL, USA)</i>	
8:00 am	An Investigation on the Use of Probability Table Cross-Sections for Monte Carlo Lattice Calculations <b><i>Nicolas Martin and A. Hebert (Ecole Polytechnique de Montreal, Canada)</i></b>	
8:25 am	Riding Bare-Back On Unstructured Meshes For 21st Century Criticality Calculations <b><i>Karen C. Kelley, Roger L. Martz, and David L. Crane (LANL, USA)</i></b>	
8:50 am	Moment-Conserving Histogramming B-Splines For Continuous Tally Estimation <b><i>Justin M Pounders and Farzad Rahnema (Georgia Institute of Technology, USA)</i></b>	
9:15 am	A Monte Carlo Surface Source Method for Advanced Test Reactor Experiment Prototyping <b><i>Paul P. H. Wilson, Patrick Snouffer (University of Wisconsin, USA), Erich A. Schneider and Joshua L. Peterson (University of Texas at Austin, USA)</i></b>	
9:40 am	Estimation of coincidence and correlation in non-analogous Monte Carlo particle transport <b><i>Máté Szieberth (Budapest University of Technology and Economics, Hungary) and Jan Leen Kloosterman (Delft University of Technology, Netherlands)</i></b>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>4C</b>	<b>Lattice Physics Calculations: in Memory of Rudi Stamm'ler - I</b>	
<b>8:00 am – 10:05 am</b>		<b>Grand Station Ballroom 2</b>
	<i>Chairs: Charles A. Wemple (Studsvik, USA) and Tomasz Kozlowski (Nuclear Power Safety, Sweden)</i>	
8:00 am	Dr. Rudolf J.J. Stamm'ler - In Memoriam <b>Juan J. Casal</b> (Westinghouse, Sweden) and <b>Jan H. Blomstrand</b> (KTH – Royal Institute of Technology, Sweden)	
8:25 am	Rudi Stamm'ler Contributions and Dragon <b>R. Roy, G. Marleau and A. Hebert</b> (Ecole Polytechnique de Montreal, Canada)	
8:50 am	Assembly Depletion with Critical Spectrum in McCARD Monte Carlo Calculations and Comparison with HELIOS <b>Ho Jin Park, Han Gyu Joo, Hyung Jin Shim and Chang Hyo Kim</b> (SNU, Korea)	
9:15 am	A Resonance Calculation Method based on the Multi-Terms Rational Approximation for General Geometry with Gray Resonance Absorbers <b>Hiroki Koike, Kazuya Yamaji, Daisuke Sato, Shinobu Tsubota, Hideki Matsumoto</b> (MHI, Japan) and <b>Akio Yamamoto</b> (Nagoya, University)	
9:40 am	Neutronic Calculations for Steel-Reflected Fast Critical Systems with the Sub-Group Sn Method <b>Go CHIBA and Teruhiko KUGO</b> (JAEA, Japan)	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>7A</b>	<b>Nuclear Criticality Safety – I</b>	
<b>8:00 am – 10:05 am</b>		<b>Grand Station Ballroom 3</b>
	<i>Chairs: Dennis Mennerdahl (E Mennerdahl Systems, Sweden) and Tatiana Ivanova (IRSN, France)</i>	
8:00 am	FCC-NG: The AREVA Safe Fresh Fuel Shipping Cask To Deliver The Future EPR™ Reactors <b>Marcel BOUFFIER</b> (Presenter) <i>M. Doucet, P. Faye, Ch. Faignet, R. Babut, M. Landrieu, F. Marvaud and G. Romanet (AREVA, France)</i>	
8:25 am	On the Criticality Safety of Transuranic Sodium Fast Reactor Fuel Transport Casks <b>Samuel E. Bays</b> (INL, USA) and <i>Ayodeji Alajo (Texas A&amp;M, USA)</i>	
8:50 am	ISOCRIT: A Burnup Credit Tool For Spent Fuel Pool Storage Calculations <b>Vefa N. Kucukboyaci</b> and <i>William J. Marshall (Westinghouse, USA)</i>	
9:15 am	TGBLA Spent Fuel Isotopic Predictions And Their Effect On Criticality Calculations <b>Walid A. Metwally</b> , <i>Masatoshi Sugawara, Vernon W. Mills (GNF, USA) and John C. Hannah (GEH, USA)</i>	
9:40 am	MCNP5 Criticality Experiment Benchmark For The Dry Storage System Of Chinshan Nuclear Power Plant <b>Yung-Hung Teng</b> , <i>Jau-Tyne Yeh and Chung-Hsing Hu (INER, Taiwan) and Cheng-Hsi Wu (Taiwan Power Company, Taiwan)</i>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>5B</b>	<b>Liquid Metal Fast Reactor Design &amp; Analysis</b>	
<b>8:00 am – 10:05 am</b>		<b>Grand Station Ballroom 4</b>
	<i>Chairs: Denis Verrier (AREVA, France) and Joe Miller (EDA, Inc, USA)</i>	
8:00 am	Feasibility Study Of Ultra-Long Life Fast Reactor Core Concept <i>T. K. Kim and T. A. Taiwo (ANL, USA)</i>	
8:25 am	Studies of metal (U-Pu-Zr) Fuel in BOR-60 Reactor With Focus On Its Use In High-Power Sodium Fast Reactors <i>E. F. Mitenkova, N.V.Novikov (NSIRAS, Russia), G.I.Gadzhiev and V.N.Syuziyov (ATOMENERGOPROM, Russia)</i>	
8:50 am	Void Reactivity Decomposition For The Sodium-Cooled Fast Reactor In Equilibrium Closed Fuel Cycle <i>Kaichao Sun, Jiri Krepel, Konstantin Mikityuk, Rakesh Chawla (PSI, Switzerland)</i>	
9:15 am	Application Of Method Of Characteristics To Fast Reactor Core Analysis <i>Toshikazu Takeda (University of Fukui, Japan), Takanori Kitada (Osaka University, Japan), Hiroshi Nishi and Junichi Ishibashi (JAEA, Japan)</i>	
9:40 am	Conceptual Core Design Of A Generation IV LFR Demonstration Plant <i>Sara Bortot (Politecnico di Milano, Italy), Patrizio C. Camprini, Giacomo Grasso (Università degli Studi di Bologna, Italy), Carlo Artioli, Stefano Monti (NANT, Italy)</i>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>8F</b>	<b>Multi-Physics Reactor Simulations – III</b>	
<b>8:00 am – 10:05 am</b>		<b>Grand Station Ballroom 5</b>
	<i>Chairs: Brian Boer (INL, USA) and Antonio Sargeni (IRSN, France)</i>	
8:00 am	COBRA-TF / QUABOX-CUBBOX: Code System For Coupled Core And Subchannel Analysis <i>Yann Périn, K. Velkov, A. Pautz (GRS mbH, Germany)</i>	
8:25 am	Improvements To The NEM/THERMIX Coupled Code Analysis Of High Temperature Reactors <i>Peter T. Mkhabela and Kostadin N. Ivanov (PSU, USA)</i>	
8:50 am	Development And Optimization Of Coupling Interfaces Between Reactor Core Neutronics And Thermal-Hydraulic Codes <i>Ilyes Gouja, Maria Avramova, Adam Rubin (PSU, USA)</i>	
9:15 am	On Delayed Neutron Effects At The Starting Of Accelerator Driven Systems To The Nominal Power <i>Rubens Souza Santos (Instituto de Engenharia Nuclear, Brazil)</i>	
9:40 am	Coupled TORT-TD/CTF Capability For High-Fidelity LWR Core Calculations <i>M. Christienne, M. Avramova (PSU, USA), Y. Perin and A. Seubert (GRS mbH, Germany)</i>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>11A</b>	<b>Verification and Validation – I</b>
<b>10:20 am – 12:00 pm</b>	<b><i>Grand Station Ballroom 1</i></b> <i>Chairs: Bill Charlton (Texas A&amp;M, USA) and Takanori Kitada (Osaka University, Japan)</i>
10:20 am	Benchmarking TransLAT for Fission Product Generation <b><i>David J Sweeney and William S. Charlton</i></b> <i>(Texas A&amp;M University, USA)</i>
10:45 am	Development Of A “Best Representativity” Method For Measurement Data Analysis – Application To Critical Experiment Simulating PWR At The Toshiba Nca Facility <b><i>Takuya UMANO, Kenichi YOSHIOKA, Mitsuki YAMAOKA, Satoshi SUGAHARA (Toshiba, Japan) and Mohamed Ouisloumen</i></b> <i>(Westinghouse, USA)</i>
11:10 am	SCALE 6 Analysis of HTR-10 Pebble-Bed Reactor For Initial Critical Configuration <b><i>Eva E. Sunny (University of Michigan, USA)</i></b> <i>and Germina Ilas (ORNL, USA)</i>
11:35 am	Qualification Of The French APOLLO2.8/CEA2005V4 Code Package On Absorber Clusters In 17X17 PWR Type Lattices Through The Cameleon Program <b><i>Patrick BLAISE, Olivier LITAIZE, Jean-François VIDAL and Alain SANTAMARINA (CEA, France)</i></b>
<b>12:00 pm – 1:30 pm</b>	<b>Lunch Break</b>

<b>4D</b>	<b>Lattice Physics Calculations: in Memory of Rudi Stamm'ler - II</b>
<b>10:20 am – 12:00 pm</b>	<b>Grand Station Ballroom 2</b> <i>Chairs: Tomasz Kozlowski (Nuclear Power Safety, Sweden) and Taek K. Kim (ANL, USA)</i>
10:20 am	APOLLO2-A – AREVA's New Generation Lattice Physics Code: Methodology And Validation <i>E. Martinolli, T.C. Carter, F. Clément, P.M. Demy, M. Leclère, P. Magat, A. Marquis, V. Marotte, J. Marten, S. Misu, M. Schneider, S. Thareau, L. Villatte (AREVA NP, France)</i>
10:45 am	Qualification of APOLLO2.8/JEFF-3.1.1 Code Package for the Calculations of PWR Plutonium Recycling Using the EPICURE Experiments <i>J-F. Vidal, A. Calloo, P. Blaise (CEA, France)</i>
11:10 am	Analysis of the Spatial Isotopic Distributions during the Burnup of UMOX- and ThMOX-Fuels on Unit Cell Basis <i>B. Merk and S. Scholl (Forschungszentrum Dresden-Rossendorf, Germany)</i>
11:35 am	Analysis of the MISTRAL Experiment on the Reactivity Temperature Coefficient for UOX and MOX Lattices using JEFF3.1.1 <i>Lahoussine ERRADI and Alain SANTAMARINA (CEA, France)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Lunch Break</b>

<b>6C</b>	<b>Advanced and Fast Reactor Designs</b>
<b>10:20 am – 11:35 am</b>	<b><i>Grand Station Ballroom 3</i></b> <i>Chairs: Kevan Weaver (TerraPower, USA) and Robb Borland (FirstEnergy USA)</i>
10:20 am	Preliminary Assessment of a Fusion-Fission Hybrid Reactor <b><i>Terry Kammash (University of Michigan, USA)</i></b>
10:45 am	Definition Of Breeding Gain For Molten Salt Reactors <b><i>K. Nagy, J. L. Kloosterman, D. Lathouwers and T. H. J. J. van der Hagen (Delft University of Technology, Netherlands)</i></b>
11:10 am	Fast Reactor Transmutation Performance And Conversion Ratio Effects <b><i>Edward A. Hoffman and Temitope A. Taiwo (ANL, USA)</i></b>
<b>12:00 pm – 1:30 pm</b>	<b>Lunch Break</b>

<b>1C</b>	<b>Nuclear Data Testing and Validation I</b>
<b>10:20 am – 12:00 pm</b>	<b>Grand Station Ballroom 4</b> <i>Chairs: Blair Bromley (AECL, Canada) and Mike Zerkle (Bettis, USA)</i>
10:20 am	ENDF/B-VII.0 versus ENDF/B-VI.8 in CANDU Calculations <i>Dimitar V Altiparmakov (AECL, Canada)</i>
10:45 am	Impact Of Difference Of Neutron Cross Section Libraries To Isotopic Concentration Of Actinides <i>Shogo Matsuoka, Takuya Ito (NFI, Japan)</i>
11:10 am	Thermal Spectrum Critical Experiments Using ENDF/B-VII.0, JEFF 3.1.1 And JENDL 3.3 <i>Harish C. Huria, Vefa N. Kucukboyaci, and Mohamed Ouisloumen (Wesinghouse, USA)</i>
11:35 am	Reactivity And Flux Calculations Using MCNP For Heavy-Water Experiments In The ZED-2 Critical Facility Using Low-Enriched Uranium Fuel Bundles <i>Wong Fook Choy, Jeremy Pencer, Blair P. Bromley, Julian Atfield and Mike Zeller (AECL, Canada)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Lunch Break</b>

<b>8C</b>	<b>Three-dimensional Transient Analysis Methods – III</b>
<b>10:20 am – 12:00 pm</b>	<b><i>Grand Station Ballroom 5</i></b> <i>Chairs: Bedirhan Akdeniz (Westinghouse, USA) and Gumersindo Verdu (University Politecnica Valencia, Spain)</i>
10:20 am	An Approach Of SFR Safety Study Through The Most Penalizing Sodium Void Reactivity <b><i>Vincenzo Tiberi, Evgeny Ivanov and Sophie Pignet (IRSN, France)</i></b>
10:45 am	Analysis Of Sodium Void Coefficient For 500 MWe Metal Reactor <b><i>Prabhakara Chappidi Reddy, K. G. Raghu and V. Sathyamoorthy (Indira Gandhi Centre for Atomic Research, India)</i></b>
11:10 am	Coupled 3-D Neutronics/Thermal-Hydraulic Core Analysis <b><i>Martin A. Zimmerman (Presenter) Hakim Ferroukhi (PSI, Switzerland) and Kurt Hofer (Axpo AG Kernenergie, Switzerland)</i></b>
11:35 am	Validation Of ATUCHA-2 PHWR HELIOS And RELAP5-3D Model By Monte Carlo Cell And Core Calculations <b><i>Carlo Parisi, M. Pecchia and F. D'Auria (University of Pisa, Italy), K. N. Ivanov (PSU, USA) and O. Mazzantini (NA-SA, Argentina)</i></b>
<b>12:00 pm – 1:30 pm</b>	<b>Lunch Break</b>

<b>11B</b>	<b>Verification and Validation – II</b>	
<b>1:30 pm – 3:10 pm</b>		<b><i>Grand Station Ballroom 1</i></b>
	<i>Chairs: Walid Metwally (GE, USA) and Patrick Blaise (CEA, France)</i>	
1:30 pm	MCNPX Burnup Simulation Of The Isotope Correlation Experiment <b><i>Yan Cao, Yousry Gohar (ANL, USA) and Cornelis H. M. Broeders (Forschungszentrum Karlsruhe, Germany)</i></b>	
1:55 pm	Confirmation Of The Similarity Between Critical Experiments And Real Cores By Using Representativity Factor In LWR Cell <b><i>Takanori Kitada and Yousuke Inoue (Osaka University, Japan)</i></b>	
2:20 pm	Results of the IAEA CRP5 - Benchmark Analysis Related to the PBMR-400, PBMM, GT-MHR, HTR-10 and the ASTRA Critical Facility <b><i>Bismark Tyobeka (IAEA, Austria) and Frederik Reitsma (PBMR, South Africa)</i></b>	
2:45 pm	Coupling Of WIMS-AECL And ORIGEN-S For Depletion Calculations <b><i>Blair Bromley (Presenter) Geoffrey WR Edwards (AECL, Canada)</i></b>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>4E</b>	<b>Lattice Physics Calculations: in Memory of Rudi Stamm'ler – III</b>	
<b>1:30 pm – 3:10 pm</b>		<b>Grand Station Ballroom 2</b>
	<i>Chairs: Taek K. Kim (ANL, USA) and Charles A. Wemple (Studsvik, USA)</i>	
1:30 pm	Validation of the Lattice Physics Code LANCER02 with ENDF/B-VII Library <i>Ugur Mertuyrek, Scott Palmtag, Godfree Gert, and Joshua Finch (GNF, USA)</i>	
1:55 pm	Nodal Expansion Method with Axially Varying Cross-sections <i>Benjamin Collins, Andrew Ward, Yunlin Xu, Thomas Downar (University of Michigan, USA)</i>	
2:20 pm	Development of The HELIOS/CAPP Code System for the Analysis of Pebble Type VHTR Cores <i>Hyun Chul Lee, Chang Keun Jo, and Jae Man Noh (KAERI, Korea)</i>	
2:45 pm	Optimizing Monte Carlo to Multiple Responses: the Direct Statistical Approach, 10 Years On <i>Kenneth W. Burn, (ENEA, Italy)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>6E</b>	<b>Transuranic Applications</b>	
<b>1:30 pm - 3:10pm</b>		<b>Grand Station Ballroom 3</b>
	<i>Chairs: Robert St. Clair (Duke Power, USA) and Moussa Mahgerefteh (Exelon Nuclear, USA)</i>	
1:30 pm	Design Studies for Full-MOX BWR Cores <i>G. Bender, M. Rost and W.U. Timm (AREVA NP, Germany)</i>	
1:55 pm	Temperature Reactivity Coefficient For Plutonium Fuel In A High Temperature Reactor <i>Christoph Pohl (Forschungszentrum Jülich GmbH, Germany)</i>	
2:20 pm	The Behaviour Of A Preliminary Transuranic Mixed Oxide Fuel Design in a CANDU 6 Reactor <i>Andrew C Morreale, W. J. Garland and D. R. Novog (McMaster University, Canada)</i>	
2:45 pm	Attainable Burnup In A Life Engine Loaded With Depleted Uranium <i>Massimiliano Fratoni, Kevin J. Kramer, Jeffery F. Latkowski, Ryan P. Abbott (LLNL, USA), Jeffrey E. Seifried and Jeffrey J. Powers (University of California Berkeley, USA)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>2G</b>	<b>Parallel Algorithms and Applications</b>	
<b>1:30 pm – 3:10 pm</b>		<b><i>Grand Station Ballroom 4</i></b>
	<i>Chairs: Yousry Azmy (NCSU, USA) and Gianluca Longoni (Westinghouse, USA)</i>	
1:30 pm	A Parallel Algorithm for Solving the Multidimensional Within-Group Discrete Ordinates Equations with Spatial Domain Decomposition	
	<b><i>Robert J Zerr (PSU, USA) and Y. Y. Azmy (NCSU, USA)</i></b>	
1:55 pm	FPGA Hardware Acceleration For High Performance Neutron Transport Computation Based On Agent Methodology	
	<b><i>Xue Yang (Presenter)</i></b> <i>Shanjie Xiao and Tatjana Jevremovic (University of Utah, USA)</i>	
2:20 pm	Analysis of the Pool Critical Assembly Benchmark Using RAPTOR-M3G, a Parallel Deterministic Radiation Transport Code	
	<b><i>Greg A Fischer (Westinghouse, USA)</i></b>	
2:45 pm	Application Of Raptor-M3G To Reactor Dosimetry Problems On Massively Parallel Architectures	
	<b><i>Gianluca Longoni (Westinghouse, USA)</i></b>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>9A</b>	<b>Research Reactor Facilities and Benchmarking</b>	
<b>1:30 pm – 2:45 pm</b>		<b><i>Grand Station Ballroom 5</i></b>
	<i>Chairs: Frederik Reitsma (PBMR, South Africa) and John Bess (INL, USA)</i>	
1:30 pm	Research Activities in the ZED-2 Critical Facility <i>Blair Bromley (Presenter)</i> <i>Alex M. Rauket and G. P. McPhee (AECL, Canada)</i>	
1:55 pm	Large-Scale Irradiated Fuel Experiments at PROTEUS Research Program <i>M. F. Murphy, G. Perret, O. Köberl, K. A. Jordan, P. Grimm, H. Kröhnert, M. A. Zimmermann (PSI, Switzerland)</i>	
2:20 pm	Benchmark Evaluation of the Start-Up Core Reactor Physics Measurements of the High Temperature Engineering Test Reactor <i>John D. Bess (INL, USA)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>11C</b>	<b>Standards and Benchmarks</b>
<b>3:30 pm – 5:10 pm</b>	<b><i>Grand Station Ballroom 1</i></b> <i>Chairs: Hans Gougar (INL, USA) and Bismark Tyobeka (IAEA, Austria)</i>
3:30 pm	High Order Finite Difference Approximations To The One-Group Neutron Diffusion Equation In 1D Heterogeneous Media Part I: Theory In Plane Media <b><i>Barry D. Ganapol (University of Arizona, USA) and David W. Nigg (INL, USA)</i></b>
3:55 pm	High Order Finite Difference Approximations To The One-Group Neutron Diffusion Equation In 1D Heterogeneous Media Part II: Implementation And Application <b><i>Barry D. Ganapol (University of Arizona, USA) and David W. Nigg (INL, USA)</i></b>
4:20 pm	The OECD/NEA/NSC PBMR 400 MW Coupled Neutronics Thermal Hydraulics Transient Benchmark: Transient Results <b><i>Gerhard Strydom, Frederik Reitsma (PBMR, South Africa), Prisca T Ngeleka and Kostadin N Ivanov (PSU, USA)</i></b>
4:45 pm	Current Status and Results of the PBMR “Pebble Box” Benchmark within the Framework of the IAEA CRP5 <b><i>Frederik Reitsma (PBMR, South Africa) and Bismark Tyobeka (IAEA, Austria)</i></b>
<b>7:00 pm</b>	<b>Conference Banquet</b> <b>Introduction</b> <i>Conference Chair: Baard Johansen (Westinghouse, USA)</i>  <b>Using Computational Fluid Dynamic Tools to Solve Nuclear Fuel Design Problems</b> <i>Bob Buechel (Westinghouse, USA)</i>

<b>4F</b>	<b>Computational Challenges of HTGR</b>
<b>3:30 pm - 5:35 pm</b>	<b><i>Grand Station Ballroom 2</i></b> <i>Chairs: Germina Ilas (ORNL, USA) and Eugene Shwageraus(MIT, USA)</i>
3:30 pm	HTGR Fuel Element Depletion Benchmark: Stage Three Results <i>Emil Fridman (Forschungszentrum Dresden-Rossendorf, Germany) and Eugene Shwageraus (Ben-Gurion University, Israel)</i>
3:55 pm	HTTR Fuel Block Simulations With SCALE <i>Dan Ilas, Jess Gehin (ORNL, USA)</i>
4:20 pm	On SCALE Validation for PBR Analysis <i>Germina Ilas (ORNL, USA)</i>
4:45 pm	PEBBLES Mechanics Simulation Speedup <i>Joshua J. Cogliati and Abderrafi M. Ougouag (INL, USA)</i>
5:10 pm	PEBBLES Simulation of Static Friction and New Static Friction Benchmark <i>Joshua J. Cogliati and Abderrafi M. Ougouag (INL, USA)</i>
<b>7:00 pm</b>	<b>Conference Banquet</b> <b>Introduction</b> <i>Conference Chair: Baard Johansen (Westinghouse, USA)</i>  <b>Using Computational Fluid Dynamic Tools to Solve Nuclear Fuel Design Problems</b> <i>Bob Buechel (Westinghouse, USA)</i>

<b>6D</b>	<b>Alternative Fuel Cycles</b>
<b>3:30 pm - 5:35 pm</b>	<b>Grand Station Ballroom 3</b> <i>Chairs: Ayodeji Alajo (Texas A&amp;M, USA) and Dieter Porsch (AREVA NP GmbH, Germany)</i>
3:30 pm	Consideration Of Reactor Systems For Uranium Resource Extension And Waste Minimization <b><i>Temitope A. Taiwo, Taek K. Kim, Robert N. Hill (ANL, USA), P. J. Finck (INL, USA)</i></b>
3:55 pm	Introduction of MOTTO Cycle to CANDLE Fast Reactor <b><i>Hiroshi Sekimoto and Akito Nagata (Tokyo Institute of Technology, Japan)</i></b>
4:20 pm	Solution Of The Equilibrium Fuel Vector In Closed Fuel Cycles And Application To A Lead Fast Reactor <b><i>Carlo Petrovich, C. Artioli (ENEA, Italy) and G. Grasso (University of Bologna, Italy)</i></b>
4:45 pm	Nuclear Fuel Cycle Sensitivity To The Variation Of Physical Parameters <b><i>Anthony M Scopatz (The University of Texas at Austin, USA), Jun Li (The University of North Carolina, USA), Man-Sung Yim (North Carolina State University, USA), and Erich Schneider (The University of Texas at Austin, USA)</i></b>
5:10 pm	Closing the Nuclear Fuel Cycle in the 21st Century while Minimizing Proliferation Risk <b><i>Stuart Arm and Christopher Phillips (EnergySolutions LLC, USA)</i></b>
<b>7:00 pm</b>	<b>Conference Banquet</b> <b>Introduction</b> <i>Conference Chair: Baard Johansen (Westinghouse, USA)</i>  <b>Using Computational Fluid Dynamic Tools to Solve Nuclear Fuel Design Problems</b> <i>Bob Buechel (Westinghouse, USA)</i>

<b>9C</b>	<b>Operational Support Analyses</b>
<b>3:30 pm - 5:35 pm</b>	<b><i>Grand Station Ballroom 4</i></b> <i>Chairs: Jim Kuijper (NRG, Netherlands) and Alireza Haghghat (UFL, USA)</i>
3:30 pm	Startup Reactivity Accountability Attributed to Isotopic Transmutations In Irradiated Beryllium Reflector of the High Flux Isotope Reactor <i>David Chandler, G. Ivan Maldonado (University of Tennessee, USA) and R. T. Primm, III (ORNL, USA)</i>
3:55 pm	Refined Control Rod Worth Estimation By Kinetics Equations with Included Photoneutrons <i>Silva Kalcheva and Edgar Koonen (SCK•CEN, Belgium)</i>
4:20 pm	Dose Rate Assessment for the HFR Repair <i>Steven C. van der Marck, J. Oppe (NRG, Netherlands) and J. Valkó (Ikesol Consulting, Netherlands)</i>
4:45 pm	Study of RHF Conversion in LEU Fuel Neutronic Calculations with MCNPX And VESTA <i>A. Bergeron (ANL, USA), Corinne D'Aletto (Institut Laue-Langevin, France), W. Haeck and B. Cochet (IRSN, France)</i>
5:10 pm	Studies on the Transition to the Equilibrium Core of the Jules Horowitz Reactor <i>C. D'Aletto, C. Döderlein and P. Siréta (CEA, France)</i>
<b>7:00 pm</b>	<b>Conference Banquet</b> <b>Introduction</b> <i>Conference Chair: Baard Johansen (Westinghouse, USA)</i>  <b>Using Computational Fluid Dynamic Tools to Solve Nuclear Fuel Design Problems</b> <i>Bob Buechel (Westinghouse, USA)</i>



<b>8G</b>	<b>Developments in Probabilistic Risk Assessments</b>	
<b>8:00 am – 9:40 am</b>		<b>Grand Station Ballroom 1</b>
	<i>Chairs: Cesare Frepoli (Westinghouse, USA) and Hongwu Cheng (Vattenfall, Sweden)</i>	
8:00 am	Evaluation of Aleatory and Epistemic Uncertainties in Level 2 Probabilistic Safety Analysis by Means of Bayesian Monte Carlo Methods <i>Axel Hoefler, Gerben Dirksen, J. Eyink and Eva-Maria Pauli (AREVA NP GmbH, Germany)</i>	
8:25 am	Application Of SMAP Methodology To A 10% Power Up-Rate For Zion NPP SBO Transient <i>Fabrice FOUET, P. PROBST, J.M. LANORE (IRSN, France)</i>	
8:50 am	Fast Sensitivity Ranking And Reliability Analysis Of Passive Thermal Hydraulic Safety System By Automatic Differentiation <i>A. John Arul, P. Mohanakrishnan (Indira Gandhi Centre for Atomic Research, India), N. Kannan Iyer and A. K. Verma (IIT, India)</i>	
9:15 am	Functional Reliability Analysis Of Safety Grade Decay Heat Removal System Of PFBR By Augmentation Of Approximate Linear Response Surfaces <i>Sajith Mathews T, A John Arul, U. Parthasarathy and K. V. Subbaiah (Indira Gandhi Centre for Atomic Research, India)</i>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>4L</b>	<b>Advances and Validation of Reactor Physics Tools – I</b>	
<b>8:00 am – 10:05 am</b>		<b><i>Grand Station Ballroom 2</i></b>
	<i>Chairs: Blair Bromley (AECL, Canada) and Sten-Orjan Lindahl (Studsvik Scanpower AB, Sweden)</i>	
8:00 am	Multilevel Criticality Computations in AREVA NP's Core Simulation Code ARTEMIS <b><i>Rene van Geemert (AREVA NP GmbH, Germany)</i></b>	
8:25 am	Evaluation of Gamma Scanning in Oskarshamn2 with SIMULATE-5 <b><i>Sten-Orjan Lindahl (Studsvik Scanpower AB, Sweden) and Tamer Bahadir (Studsvik Scandpower, USA)</i></b>	
8:50 am	Validation of BWR Simulation Methods via Bundle and Pin-by-Pin Power Gamma Scan Results <b><i>Brian R. Moore and John P. Rea (GNF, USA)</i></b>	
9:15 am	Parallel Computing in Scale <b><i>Mark D. DeHart, M. L. Williams, and S. M. Bowman (ORNL, USA)</i></b>	
9:40 am	BWR Modeling Capability and SCALE/TRITON Lattice-to-Core Integration of the NESTLE Nodal Simulator <b><i>Jack Galloway, Hermilo Hernandez, G. Ivan Maldonado (University of Tennessee, USA), Matt Jessee, Emilian Popov and Kevin Clarno (ORNL, USA)</i></b>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

<b>7B</b>	<b>Nuclear Criticality Safety – II</b>	
<b>8:00 am – 10:05 am</b>		<b>Grand Station Ballroom 3</b>
	<i>Chairs: Sedat Goluoglu (ORNL, USA) and Charles T. Rombough (CTR Technical Services, USA)</i>	
8:00 am	OECD/NEA Expert Group On Uncertainty Analysis For Criticality Safety Assessment: Current Activities <i>Tatiana Ivanova, Frederic Fernex (IRSN, France), Edwin Kolbe, Alexander Vasiliev (PSI, Switzerland), Gil Soo Lee, Sweng Woong Woo (KINS, Korea), Dennis Mennerdahl (E Mennerdahl Systems, Sweden), Yasunobu Nagaya (JAEA, Japan), Jens-Christian Neuber, Axel Hoefler (AREVA NP GmbH, Germany), Bradley Rearden, Don Mueller (ORNL, USA), Yolanda Rugama (OECD, France), Alain Santamarina, Christophe Venard (CEA, France), Anatoly Tsiboulia, Yury Golovko (IPPE, Russia)</i>	
8:25 am	Keff Sensitivity/Uncertainty Analysis of the Phase VII Burnup Credit Benchmark <i>B. Cabellos, O. Cabellos, N. Garcia-Herranz (Universidad Politécnica de Madrid, Spain)</i>	
8:50 am	Determination Of A Depletion Uncertainty From Fuel Management Experience <i>Dale B. Lancaster and Charles T. Rombough (CTR Technical Services, USA)</i>	
9:15 am	Third order time correlation method applied to SILENE absolute criticality measurements <i>Philippe P. Humbert (CEA, France)</i>	
9:40 am	Hierarchical Monte-Carlo approach to bias estimation for criticality safety calculations <i>Oliver Buss, Axel Hoefler, Jens Christian Neuber, Michael Schmid (Areva NP GmbH, Germany)</i>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>5A</b>	<b>Plant Improvements</b>	
<b>8:00 am –10:05 am</b>		<b>Grand Station Ballroom 4</b>
	<i>Chairs: C. Garzenne (EDF, France) and Tanguy Courau (EDF, France)</i>	
8:00 am	VVER-440 Control Rod Follower Induced Local Power Peaking Computational Benchmark: MCNP and KARATE Solutions <i>Emese Temesvári, Gy. Hegyi, G. Hordósy, A. Keresztúri, Cs. Maráczy (KFKI Atomic Energy Research Institute, Hungary)</i>	
8:25 am	Improvement Of The Conversion Ratio In PWR <i>Damian Frederic, S. Douce, A. Bergeron, B. Gastaldi, A. Conti, F. Moutin, D. Pialla (CEA, France)</i>	
8:50 am	Investigation Of RCCA Absorber Depletion In Normal Plant Operation. Application To The Shutdown Margin Analysis <i>Marcel Bouffier and Sylvie Ebalard (AREVA NP, France)</i>	
9:15 am	SCWR Assembly Designs with Peripheral Moderator Channels <i>Peng Zhang, Kan WANG, Ganglin YU Ganglin (Tsinghua University, China)</i>	
9:40 am	Review of Worldwide Reactor-Physics Codes and Their Applicability to the Current and Next-Generation CANDU Reactors <i>Wei Shen and M. Dahmani (AECL, Canada)</i>	
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>3E</b>	<b>Monte Carlo Methods - General II</b>
<b>8:00 am – 10:05 am</b>	<b>Grand Station Ballroom 5</b>
	<i>Chairs: Tom Sutton (KAPL, USA) and Brian Kiedrowski (LANL, USA)</i>
8:00 am	<p>Verification Of PWR In- And Ex- Vessel Neutron Fluence Calculations With MCNPX, Based On The "H.B. Robinson-2" Dosimetry Benchmark</p> <p><b>Martin A. Zimmerman</b> (Presenter)</p> <p><i>Alexander Vasiliev (PSI, Switzerland), Romain Pittarello (EPFL, Switzerland), Hakim Ferroukhi, Edwin Kolbe (PSI, Switzerland)</i></p>
8:25 am	<p>Monte Carlo Methods for Neutron Transport on Graphics Processing Units Using CUDA</p> <p><b>Adam G. Nelson</b> (US Navy, USA) and <i>Kostadin N. Ivanov (PSU, USA)</i></p>
8:50 am	<p>PET Image Reconstruction With On-The-Fly Monte Carlo Using GPU</p> <p><b>David Legrady</b>, <i>A. Cserkaszky (Budapest University of Technology and Economics, Hungary), A. Wirth (Semmelweis University, Hungary) and B. Domonkos (Mediso Medical Imaging Systems Ltd., Hungary)</i></p>
9:15 am	<p>TMCC: A Transient Three-Dimensional Neutron Transport Code by the Direct Simulation Method</p> <p><i>Huayun Shen, Zeguang LI, Kan WANG, Ganglin YU (Tsinghua University, China)</i></p>
9:40 am	<p>Monte Carlo Simulations and Experimental Validations of <math>\alpha</math> Eigenvalues</p> <p><i>Zeguang LI, Xin YANG, Tianya LI, Ganglin YU and Kan WANG (Tsinghua University, China)</i></p>
<b>10:05 am – 10:20 am</b>	<b>Coffee Break</b> <b>Admiral</b>

<b>11D</b>	<b>Uncertainty Analysis in Modeling – I</b>
<b>10:20 am – 12:00 pm</b>	<b>Grand Station Ballroom 1</b> <i>Chairs: Giuseppe Palmiotti (INL, USA) and Ivan Kodeli (Jožef Stefan Institute, Slovenia)</i>
10:20 am	Sensitivity and Uncertainty of the Neutronic Parameters of BWR Ringhals-1 TRACE/PARCS Stability Prediction <i>Ivan A Gajev, <b>Tomasz Kozlowski</b> (Royal Institute of Technology, Sweden), Yunlin Xu and Thomas Downar (University of Michigan, USA)</i>
10:45 am	Uncertainty Associated With The In-Core Kinf Criterion Methodology For Fuel Storage Criticality Safety Analyses <i><b>John C Hannah</b> (GEH, USA), Walid A. Metwally and Vernon W. Mills (GNF, USA)</i>
11:10 am	Sensitivity Analyses For Small Fast Reactor Nuclear Characteristics With A Discrete Ordinate Transport Calculation Method <i><b>Tsugio Yokoyama</b> (Presenter) Masatoshi Kawashima, Yasushi Tsuboi, Akito Nagata, and Mitsuaki Yamaoka (Toshiba, Japan)</i>
11:35 am	Sensitivity and Uncertainty Analysis with New Covariance Data of Minor Actinides for AFC Developments <i><b>Do Heon KIM</b>, Choong-Sup Gil, Hyeong Il Kim, and Young-Ouk Lee (KAERI, Korea)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Robb Borland (FirstEnergy)</i>  <b>Commercial Used Fuel Management - Past, Present, and Future</b> <i>Dr. Everett Redmond (Nuclear Energy Institute)</i>

<b>4M</b>	<b>Advances and Validation of Reactor Physics Tools – II</b>
<b>10:20 am – 12:00 pm</b>	<b>Grand Station Ballroom 2</b> <i>Chairs: Mark Deinert (University of Texas at Austin, USA) and Sten-Orjan Lindahl (Studsvik Scanpower AB, Sweden)</i>
10:20 am	Status of Updating the Cross Section Library of the Juelich Reactor Dynamic Codes TINTE/MGT to ENDF-B-VII <i>K Nuenighoff, J. Li, C. Druska, H.-J. Allelein (Forschungszentrum Juelich GmbH, Germany)</i>
10:45 am	X <sup>2</sup> : a Coupled Neutronic - Thermal-Hydraulic Code System for Compact Research Reactor Cores <i>Harald Breitzkreutz, Anton Röhmoser, Winfried Petry (Technische Universität München, Germany)</i>
11:10 am	Development and Verification of Quick and Precise Core Physics Analysis Code <i>Yongming Hu, Zhihong Liu (Tsinghua University, China), Xiu'an Shi (CNNC, China), Zhiwei Zhou (Tsinghua University, China)</i>
11:35 am	A Fast and Flexible Reactor Physics Model for Simulating Neutron Spectra and Depletion in Fast Reactors <i>GD Recktenwald, LA Bronk and MR Deinert (University of Texas at Austin, USA)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Robb Borland (FirstEnergy)</i>  <b>Commercial Used Fuel Management - Past, Present, and Future</b> <i>Dr. Everett Redmond (Nuclear Energy Institute)</i>

<b>9E</b>	<b>Physics Tests, Measurements and Evaluation</b>
<b>10:20 am – 12:00 pm</b>	<b>Grand Station Ballroom 3</b> <i>Chairs: Hans Gougar (INL, USA) and Jim Kuijper (NRG, Netherlands)</i>
10:20 am	KAMINI Fast Neutron Beam Attenuation Measurements in Boron Carbide Shield and their Prediction by Monte Carlo Modelling <i>D. Venkata Subramanian, E. Radha, Adish Haridas, M.M. Shanthi, C.P. Reddy and R.S. Keshavamurthy (Indira Gandhi Centre for Atomic Research, India)</i>
10:45 am	Delayed Neutron Measurements of Induced Fission Rates in Burnt LWR Fuel Samples at the PROTEUS Zero-Power Reactor Facility <i>Kelly A. Jordan, G. Perret, and M. F. Murphy (PSI, Switzerland)</i>
11:10 am	Fission Rate Measurements in Spent Fuel via Gamma-Ray Spectrometry of Short-Lived Fission Products Induced in a Zero Power Reactor <i>Hanna Kröhnert, Gregory Perret and Michael F. Murphy(PSI, Switzerland) and Rakesh Chawla (EPFL, Switzerland)</i>
11:35 am	Evaluation of Gold Activation Detectors on the Epithermal Neutron Beam at the LVR–15 Reactor <i>Zdena Lahodová, Ladislav Viererbl (Research Center Řež Ltd., Czech Republic), Vít Klupák, Alexander Voljanskij (Nuclear Research Institute Řež plc, Czech Republic)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Robb Borland (FirstEnergy)</i>  <b>Commercial Used Fuel Management - Past, Present, and Future</b> <i>Dr. Everett Redmond (Nuclear Energy Institute)</i>

<b>5D</b>	<b>Core Monitoring</b>
<b>10:20 am – 12:00 pm</b>	<b><i>Grand Station Ballroom 4</i></b> Chairs: Charles Rombough (CTR Technical Services, USA) and Walid Metwally (GNF, USA)
10:20 am	Assessment Of Fission Gas Vented Fuel Impact With Advanced Burner Reactor <b><i>Taek K. Kim and C. Grandy (ANL, USA)</i></b>
10:45 am	A Standard for the Determination of Thermal Energy Deposition Rates in Nuclear Reactors <b><i>Dimitrios Cokinos (BNL, USA)</i></b>
11:10 am	Incore Instrument Subcritical Verification (INCISV) – Core Design Verification Method <b><i>Michael C. Prible, Michael D. Heibel, Shannon L. Conner, Patrick J. Sebastiani and Daniel P. Kistler (Westinghouse, USA)</i></b>
11:35 am	Comparison of Experiments and Calculations of Void Fraction Distributions in Randomly Stacked Pebble Beds <b><i>G. J. Auwerda, J. L. Kloosterman, A. J. M. Winkelman, J. Groen, V. J. J. van Dijk (Delft University of Technology, Netherlands)</i></b>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b><i>Reflections/Waterfront</i></b>  <b>Introduction</b> <i>General Conference Co-Chair: Robb Borland (FirstEnergy)</i>  <b>Commercial Used Fuel Management - Past, Present, and Future</b> <i>Dr. Everett Redmond (Nuclear Energy Institute)</i>

<b>2D</b>	<b>Validation of Computer Codes</b>
<b>10:20 am – 12:00 pm</b>	<b>Grand Station Ballroom 5</b> <i>Chairs: Alain Hebert (Ecole Polytechnique, Canada) and Masahiro Tatsumi (NFI, Japan)</i>
10:20 am	Evolution of Computer Codes for CANDU Analysis <i>Dimitar V Altiparmakov, W. Shen (AECL, Canada), G. Marleau (EPM, Canada) and B. Rouben (12 &amp; 1 Consulting, Canada)</i>
10:45 am	Comparison of WIMS-AECL / DRAGON / RFSP and MCNP Results With ZED-2 Measurements For Control Device Worth and Reactor Kinetics <i>Jeremy Pencer, F. Choy Wong, Blair P. Bromley, Julian Atfield and Mike Zeller (AECL, Canada)</i>
11:10 am	Application of 3D Collision Probability Method to VHTR Spherical Geometries <i>Marc-Andre Lajoie, G. Marleau, N. Martin and A. Hebert (EPM, Canada)</i>
11:35 am	COMET Calculations of a Postulated Stylized Small Region of a CANDU Core <i>Dingkang Zhang, Farzad Rahnema (Georgia Institute of Technology, USA) and Dumitru Serghiuta (Canadian Nuclear Safety Commission, Canada)</i>
<b>12:00 pm – 1:30 pm</b>	<b>Conference Lunch</b> <b>Reflections/Waterfront</b>  <b>Introduction</b> <i>General Conference Co-Chair: Robb Borland (FirstEnergy)</i>  <b>Commercial Used Fuel Management - Past, Present, and Future</b> <i>Dr. Everett Redmond (Nuclear Energy Institute)</i>

<b>11E</b>	<b>Uncertainty Analysis in Modeling – II</b>	
<b>1:30 pm – 3:10 pm</b>		<b>Grand Station Ballroom 1</b>
	<i>Chairs: Maria Avramova (PSU, USA) and Carlo Parisi (University of Pisa, Italy)</i>	
1:30 pm	Comparison Of Uncertainties Quantification Methods For Fast Reactor Neutronics <i>C. Rabiti, G. Palmiotti, M. Assawaroongruengchot (INL, USA) and B. M. Adams (Sandia National Laboratories, USA)</i>	
1:55 pm	Application Of Global Sensitivity Analysis Approach To Exercise I-2 Of The OECD LWR UAM Benchmark <i>Federico Puente Espel, S. Ghayeb, K. Ivanov (PSU, USA) and S. Tarantola (JRCEC, Italy)</i>	
2:20 pm	Cross-section covariance propagation for LWR fuel cells in one and two dimensions <i>M. Ball, D. R. Novog (McMaster University, Canada), C. Parisi and F. D'Auria (University of Pisa, Italy)</i>	
2:45 pm	Evaluation And Uncertainty Analysis Of The KRITZ-2 Critical Benchmark Experiments <i>Ivan A. Kodeli and L. Snoj (Jožef Stefan Institute, Slovenia)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>4P</b>	<b>In-Core Fuel Management and Optimization – I</b>	
<b>1:30 pm – 3:10 pm</b>		<b>Grand Station Ballroom 2</b>
	<i>Chairs: Cecilia Martin-del-Campo (UNAM, Mexico) and Serkan Yilmaz (GE, USA)</i>	
1:30 pm	Loading Pattern Optimization Cooperatively Using Two New Algorithms <i>Zhaohu Gong, Kan Wang (Tsinghua University, China) and Dong Yao (Nuclear Power Institute of China, China)</i>	
1:55 pm	Study on the Mechanism and Efficiency of Simulated Annealing Using an LP Optimization Benchmark Problem <i>Qianqian Li, Xiaofeng Jiang and Shaohong Zhang (SJTU, China)</i>	
2:20 pm	Direct Optimization of Loading Pattern Search Using the HHLP Theory and the MILP Method <i>Wencong Wang, Xiaofeng Jiang and Yung-An Chao (SJTU, China)</i>	
2:45 pm	Development of an Automatic Tool for BWR Loading Pattern Optimization by Utilizing Genetic Algorithm <i>Chien-Hsiang Chen (Institute of Nuclear Energy Research, Taiwan) and Cheng-Hsi Wu (Taiwan Power Company, Taiwan)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>8H</b>	<b>Safety Analysis and Thermal-Hydraulics</b>	
<b>1:30 pm - 3:10pm</b>		<b>Grand Station Ballroom 3</b>
	<i>Chairs: Kurshad Muftuoglu (GE, USA) and Axel Hofer (AREVA, Germany)</i>	
1:30 pm	Analysis of Steam Generator Tube Rupture Event in HTR-MODUL Reactor <b>Frederik Reitsma</b> (Presenter) <i>Alex Matev (PBMR, South Africa)</i>	
1:55 pm	Pressure Vessel SBLOCA simulation with TRACE5. Application to LSTF (ROSA V) <i>V. Abella, S. Gallardo and G. Verdú</i> <i>(Universidad Politécnica de Valencia, Spain)</i>	
2:20 pm	Application And Licensing Of Westinghouse Realistic Large Break Loca Evaluation Model (ASTRUM) For Maanshan Units 1 And 2 Nuclear Power Plant <b>Cesare Frepoli</b> (Westinghouse, USA), <i>Julian S. Chiang (Taiwan Power Company, Taiwan), Jeffrey S. Petzold, Dewey C. Olinski</i> <i>(Westinghouse, USA)</i>	
2:45 pm	OECD/NRC Benchmark Based On NUPEC PWR Subchannel And Bundle Tests (PSBT) <i>A. Rubin, M. Avramova (PSU, USA) and H. Utsuno (JNESO, Japan)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b>Admiral</b>

<b>2H</b>	<b>Cross Section Collapsing &amp; Cell/Assembly Calculations</b>	
<b>1:30 pm – 3:10 pm</b>		<b><i>Grand Station Ballroom 4</i></b>
	<i>Chairs: Alireza Haghghat (University of Florida, USA) and Greg Fischer (Westinghouse, USA)</i>	
1:30 pm	Computationally Optimized Multi-group Cross Section Data Collapsing Using the YGROUP Code	
	<i>Ce Yi, G. Sjoden (University of Florida, USA), J. Mattingly (Sandia National Laboratories, USA) and T. Courau (EDF, France)</i>	
1:55 pm	Analysis of Cross-Section Condensation in PWR Simulations	
	<i>Steven J Douglass and Farzad Rahnema (Georgia Institute of Technology, USA)</i>	
2:20 pm	Elements Of Validation Of The EDF R&D Sn And SPn Solvers Vs. MCNP Multigroup Assembly Calculations	
	<i>Tanguy Courau and Angélique Ponçot (EDF R&amp;D, France)</i>	
2:45 pm	Advanced Method Of Solution Of Neutron Transport Equation In Nuclear Reactor Cell	
	<i>Tamara S. Poveschenko (RRC "Kurchatov Institute", Russia)</i>	
<b>3:10 – 3:30 pm</b>	<b>Coffee Break</b>	<b><i>Admiral</i></b>

12B	<b>Radiation Applications and Nuclear Safeguards – II</b>
3:30 pm – 4:45 pm	<b>Grand Station Ballroom 1</b> <i>Chairs: Staffan Svärd (Uppsala University, Sweden) and Rob Flammang (Westinghouse, USA)</i>
3:30 pm	Verification of a Hybrid Adjoint Methodology in TITAN for Single Photon Emission Computed Tomography <b>Katherine Royston, Alireza Haghghat, and Ce Yi (University of Florida, USA)</b>
3:55 pm	Krško Neutron Streaming Analysis And Measurement For Concrete Missile Shield Removal <b>Jianwei Chen and Arnold H. Fero (Westinghouse, USA)</b>
4:20 pm	Recent Progress In The Practical Calculation Maintenance Of Commercial Production Of Cobalt-60 At Leningrad NPP <b>Alexander Elshin, A.S. Ivanov (FSUE, Russia), A.N. Pimenov, E.K. Gorbunov and R.V. Ikonnikov (Leningrad Nuclear Power Plant, Russia)</b>

<b>4Q</b>	<b>In-Core Fuel Management and Optimization – II</b>
<b>3:30 pm - 5:35 pm</b>	<b><i>Grand Station Ballroom 2</i></b> <i>Chairs: Cecilia Martin-del-Campo (UNAM, Mexico) and Serkan Yilmaz (GE, USA)</i>
3:30 pm	BWR Bundle Optimization by Linear Perturbation and MILP <i>Tao Wang, Huanfeng Ye, Shaohong Zhang (SJTU, China)</i>
3:55 pm	Core Analysis, Design and Optimization of a Deep-Burn Pebble Bed Reactor <i>Brian Boer and A.M Ougouag (INL, USA)</i>
4:20 pm	Breed-and-Burn Depleted Uranium in Fast Reactors without Actinide Separation <i>Florent Heidet and Ehud Greenspan (University of California, USA)</i>
4:45 pm	Neutronic Evaluation of Breed-and-Burn Reactor Fuel Types Using an Infinite-Medium Depletion Approximation <i>Robert Petroski, Benoit Forget, Charles Forsberg (MIT, USA)</i>
5:10 pm	Single-cycle and Equilibrium-cycle Reloading Optimization on Real Nuclear Power Plant <i>Zhihong Liu, Yongming Hu, Zhiwei Zhou (Tsinghua University, China) and Xuan Shi (CNNC, China)</i>

<b>9D</b>	<b>Accelerator and Spallation Physics</b>
<b>3:30 pm – 4:45 pm</b>	<b><i>Grand Station Ballroom 3</i></b> <i>Chairs: Pierre D'hondt (SCKCEN, Belgium) and Frederik Reitsma (PBMR, South Africa)</i>
3:30 pm	Preliminary Analyses for Accelerator-Driven System with High-Energy Protons in Kyoto University Critical Assembly <i>Jae-Yong Lim, <b>Cheol Ho Pyeon</b>, Tsuyoshi Misawa and Seiji Shiroya (Kyoto University, Japan)</i>
3:55 pm	Reactivity Determination Techniques in ADS Systems for the Incineration of Radioactive Wastes <i>Manuel Fernández-Ordóñez, D. Villamarrin, V. Becares, <b>E. Gonzalez-Romero</b> (CIEMAT, Spain) and C. Berglof (KTH, Sweden)</i>
4:20 pm	Set-Up of a Deterministic Model for the Analysis of the Guinevere Experience <i><b>Giancarlo Bianchini</b>, Mario Carta, Fabrizio Pisacane, Manuela Frisoni, Vincenzo Peluso (ENEA, Italy)</i>

1D	<b>Nuclear Data Testing and Validation II</b>
3:30 pm – 4:20 pm	<b>Grand Station Ballroom 4</b> <i>Chairs: Mike Zerkle (Bettis, USA) and Russ Mosteller (LANL, USA)</i>
3:30 pm	Measurements and Analysis of Reactivity Worth of Rare-Earth Elements at Kyoto University Critical Assembly <i>Kosuke Shimozato, Koichi Ieyama, Takanori Kitada (Osaka University, Japan), Hidemasa Okochi, Akio Yamamoto (Nagoya University, Japan), Hironobu Unesaki (Kyoto University, Japan)</i>
3:55 pm	Validation Of The JEFF 3.1.1 Library For The Calculation Of The Physical Assays In The N4 Chooz-B1 PWR Using The Continuous Energy Monte Carlo Code TRIPOLI-4 <i>Pierre Leconte, and J-F. Vidal (CEA, France) and N. Kerkar (EDF, France)</i>

**Technical Tours**

**Beaver Valley**

8:30 am *Assemble in lobby for transportation*  
9:00 am Depart Sheraton Station Square  
10:30 am Tour and discussion  
11:30 am Lunch  
12:30 pm Tour and discussion  
3:00 pm Depart Beaver Valley  
4:00 pm Arrive Sheraton Station Square  
*Chair: Korey Hosack*

**Waltz Mills and AP1000 Mock-up Control Room**

8:30 am *Assemble in lobby for transportation*  
9:00 am Depart Sheraton Station Square  
10:15 am Westinghouse Cranberry offices  
AP1000 Simulator demo and discussion  
11:00 am Lunch  
12:00 pm Depart for Waltz Mill Facility  
1:15 pm Waltz Mill site  
Tour of C & D Bays and discussion  
4:00 pm Depart Waltz Mill  
5:00 pm Arrive Sheraton Station Square  
*Chair: Art Wharton*

**Workshop #9**

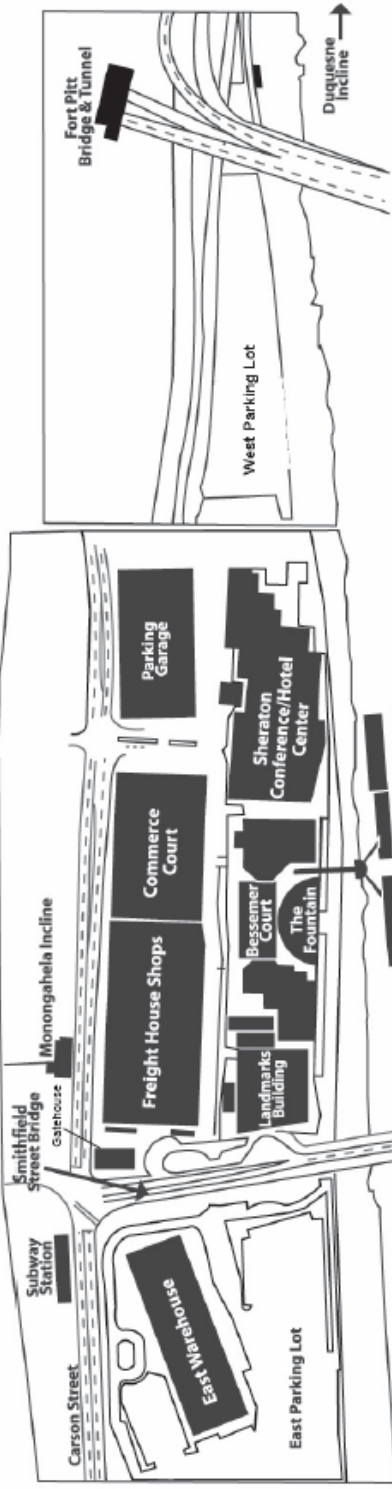
**The Pebble Bed Modular Reactor: From V.S.O.P. (Very Superior Old Product) to Generation IV candidate**

8:00 am - 4:30 pm *Grand Station Ballroom 3*  
*Chair: Frederik Reitsma (PBMR, South Africa)*

# STATION SQUARE

100 West Station Square Drive • Pittsburgh, PA 15219  
 800-859-8959 • 412-261-2811 • [stationsquare.com](http://stationsquare.com)

Official Property Sponsor:



## RESTAURANTS & NIGHTCLUBS

BC	Bar Louie	412.354.0500
BC	Buca di Beppo	412.471.5463
CC	Buckhead Saloon	412.232.3101
CC	Charley's Grilled Suits - <i>opening soon</i>	412.281.0436
FH	Cool Beans Coffee Company	412.434.0181
FH	Gandy Dancer Saloon	412.261.1717
LB	Grand Concourse	412.261.1717
BC	Hard Rock Cafe	412.481.7625
BC	Hooters	412.261.9454
FH	Houlihan's	412.261.0302
BC	Joe's Crab Shack	412.660.2404
CC	Kiku Japanese Restaurant	412.765.5200

## ATTRACTIONS

BC	Duquesne Incline	412.361.1665
BC	Funny Bone Comedy Club	412.261.3130
LM	Gateway Clipper Feet	412.355.7980
BC	Horse & Carriage Rides	724.745.1197
BC	Just Ducky Tours	412.402.3625
BC	Monongahela Incline	412.442.2000
PG	Network Parking	412.261.1993
FH	Sagway in Paradise	724.625.3521
SH	Sheraton Station Square Hotel	412.261.2000

## LEGEND

BC	Bessemer Court
CC	Commerce Court
EW	East Warehouse
FH	Freight House
GH	Gatehouse
LB	Landmarks Bldg
LM	Landing Marina
PG	Parking Garage
SH	Sheraton Hotel

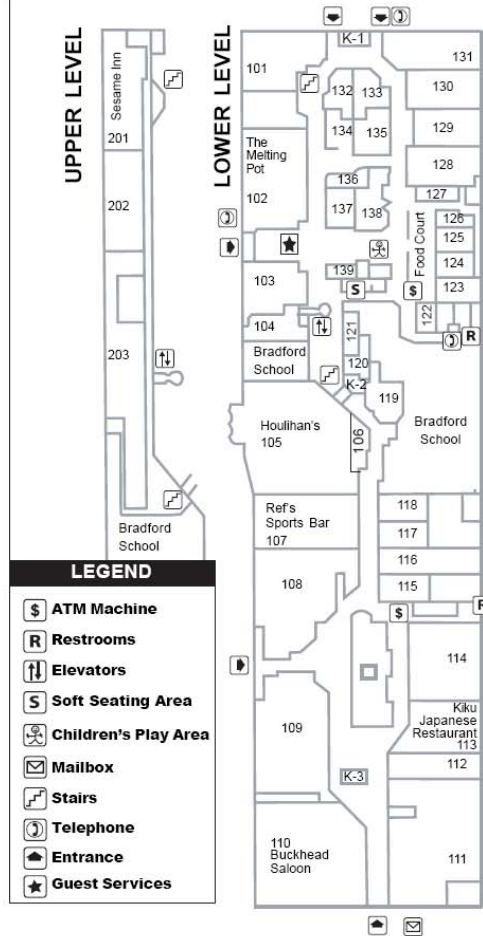
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### THE SHOPS AT STATION SQUARE

136	Accentricity Fashion Jewelry	412.391.1404
132	American Country Collection	412.281.4909
202	All Steel	412.281.6120
K-1	Blinky Jim	412.281.6035
	Bradford School	412.391.6710
128	Bradley's Books	412.391.3987
110	Buckhead Saloon	412.232.3101
125	Charley's Grilled Subs - coming Soon	412.281.0436
121	Cool Beans Coffee Co.	412.434.0181
106	Debbie's Candle Co.	412.281.5051
112	Debwal	412.434.6365
134	Doice	412.261.1234
135	Ends N Odds - NEW	412.281.6035
133	Exxact! Haircutting	412.471.2515
122	Game Room	
★	Guest Services Center	412.261.2811
103	Heinz Healey's	412.281.5115
108	Hometowne Sports	412.471.7280
115	Hometowne Sports for Her	412.246.4591
116	Hometowne Sports for Kids	412.471.7280
105	Houlihan's	412.232.0302
117	Jezebel	412.471.6445
113	Kiku Japanese Restaurant	412.765.3200
203	Live Nation	412.562.9900
139	Loova	412.227.0985
102	Melting Pot, The	412.261.3477
138	Morini	412.765.1515
123	Napoli's Pizza	412.281.5511
109	New York New York	412.765.3300
137	Pennsylvania Wine Cellars	412.642.9212
K-3	Pittsburgh Scenes by Nevin Robinson	412.391.8877
119	Poor Richard's Tobacco	412.281.1133
129	Pro Image	412.232.3828
107	Ref's Sports Bar	412.594.7337
K-2	Sam Thong, Artist	412.391.1570
126	Segway in Paradise	724.625.3521
201	Sesame Inn	412.281.8282
120	Soxx Shop	412.471.8808
104	St. Brendan's Crossing	412.471.0700
130	S.W. Randall Toys & Gifts	412.471.8800
134	Three Rivers Candy	412.261.1234

### FREIGHT HOUSE SHOPS & COMMERCE COURT



### DIRECTIONS

#### FROM NORTH: I-79 South

From 279 South towards Pittsburgh, follow signs across both the Fort Duquesne and the Fort Pitt Bridge. On the Fort Pitt Bridge, exit 5C - Route 837, West Carson Street before the tunnel. Station Square will be on your left hand side next to the river.

#### FROM EAST: PA Turnpike

Exit PA Turnpike Interchange #6, Monroeville. Follow I-376 West to Grant Street Exit. Turn left from Grant Street onto Fort Pitt Blvd. Turn left onto the Smithfield Street Bridge. Turn right at the end of bridge into Station Square.

#### FROM SOUTH: Route 51

From Route 51 North exit at Route 579 North into the right lane of Liberty Tunnel. Make a right turn immediately as you exit the tunnel at the light. Make a left at the end of the ramp onto Arlington Avenue. At the bottom of the hill, merge left onto Carson Street and follow the signs to Station Square.

#### FROM SOUTH: I-70

Take I-70 to I-79 North. Follow I-79 North until you reach 279 North towards Pittsburgh. Then follow the directions from the airport and points west.

#### FROM WEST: Airport

Take 279 North toward Pittsburgh. Take Exit 5-C right before the Fort Pitt Tunnel. Bear right on 837 West Carson Street. Station Square is on the left at the third traffic light.

### SHOP HOURS

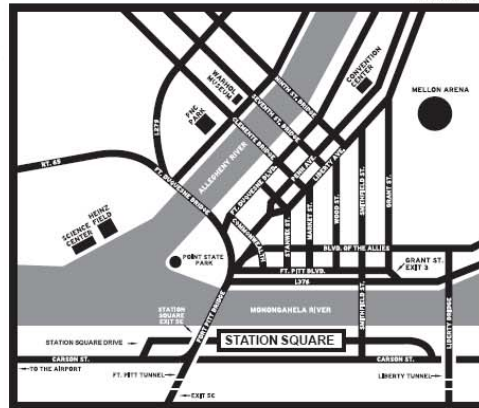
Mon.-Sat.: 10am to 9pm

Sun.: Noon-5pm

Restaurant, Nightclub & Attraction hours vary.

Closed on Easter, Thanksgiving and Christmas Days.

Updated 8.22.2007



## Station Square Directory

### ATTRACTIONS

Whether you are in Pittsburgh for business or pleasure, Station Square offers the most attractions combined into one location. Locals will tell you that Station Square is always happening featuring some of the area's top entertainment. See a show from rock to blues to jazz or comedy. Take a tour and sightsee Pittsburgh on a boat, on the historic inclines, a horse drawn carriage, or tour the town on a duck (yea it's not a typo...see Just Ducky Tours). Plus, you'll want to pick up some souvenirs from your adventures too

<b>Attraction</b>	<b>Phone Number</b>
The Fountain at Bessemer Court	412.261.2811
The Freight House Shops	412.261.2811
Duquesne Incline	412.381.1665
Gateway Clipper Fleet	412.355.7980
Horse & Carriage Rides	724.745.1197
Just Ducky Tours	412.402.DUCK
Monongahela Incline	412.442.2000
Segway Tours	412.281.7103

<b>Restaurants</b>	<b>Phone Number</b>
Bar Louie	412.394.0500
Buca di Beppo	412.471.9463
Buckhead Saloon	412.232.3101
Gandy Dancer Saloon	412.261.1717
Gateway Clipper Fleet	412.355.7980
Grand Concourse	412.261.1717
Green Room	412.281.3130
Hard Rock Cafe	412.481.7625
Houlihan's	412.232.0302
Island Cafe	412.281.6201
Joe's Crab Shack	412.690.2404
Kiku Japanese Restaurant	412.765.3200
The Melting Pot	412.261.3477
Pittsburgh Rare	412.803.3824
Red Star Tavern	412.394.0100
Sesame Inn	412.281.8282
Steelhouse Sports, Saloon & Eatery	412.434.6858
WHIM Night Club	412.281.9888
<b>Eateries &amp; Snack Spots</b>	<b>Phone Number</b>
Bruster's Ice Cream @ the Gateway Clipper	412.355.7980
Captain Jack's Gally @ Gateway Clipper	412.355.7980
Cool Beans	412.434.0181
Starbucks Coffee	412.261.4353
Station Break @ the Sheraton	412.261.2000
Subway	412.281.3260

## SHOPS

The Freight House Shops at Station Square boast old world charm in the setting of a restored railroad building. You'll find over 20 unique retailers for everything from Pittsburgh souvenirs to novelties from around the world to toys, fashions, jewelry, wine and cigars

### Shop Hours:

*Restaurant, bar and attraction hours will vary*

#### Accessories & Jewelry

Accentricity Fashion Jewelry	412.391.1404
Debwal	412.434.6365
New York New York	412.765.3300
Soxx Shop	412.471.8808

#### Apparel

Heinz Healey's	412.281.5115
Hometowne Sports	412.471.7280
Hometowne Sports for Her	412.246.4591
Hometowne Sports for Kids	412.338.0624
Jezebel	412.471.6445
Morini	412.765.1515
New York New York	412.765.3300
St. Brendan's Crossing	412.471.0700

#### Arts & Crafts

American Country Collection	412.281.4909
Caricatures & Portraits by Sam Thong	412.391.1570
Debbie's Candle	724.349.3292
Pittsburgh Scenes by Nevin Robinson	412.391.8877

#### Gifts, Books & Souvenirs

Bradley's Books	412.391.3987
Morini	412.765.1515

#### Health & Beauty

Exxact! Haircutting	412.471.2515
Loova	412.227.0985

#### Specialty

Blinky Jim's	412.281.6035
Dolce	412.261.1234
Pennsylvania Wine Cellars	412.642.9212
Poor Richard's Tobacconist	412.281.1133
S.W. Randall Toys & Gifts	412.471.8800
Three Rivers Candy	412.261.1234

## NIGHTLIFE

As Pittsburgh's top entertainment destination, Station Square is always happening. Laugh the night away at our comedy club. Bar hop to one or more of our more than 20 different bars. See live music at an intimate bar show or a major concert at our amphitheatre. Or just dance the night away at one of our night clubs. At Station Square our nightlife scene is *anything but square!*

<b>Bars</b>	<b>Phone Number</b>
Bar Louie	412.394.0500
Buca di Beppo	412.471.9463
Buckhead Saloon	412.232.3101
Funny Bone Comedy Club	412.281.3130
Gandy Dancer Saloon	412.261.1717
Gateway Clipper Fleet	412.355.7980
Grand Concourse	412.261.1717
Green Room	412.281.3130
Hard Rock Cafe	412.481.7625
Houlihan's	412.232.0302
Joe's Crab Shack	412.690.2404
Kiku Japanese Restaurant	412.765.3200
Lobby Bar @ Sheraton Hotel	412.261.2000
Margarita Mamas	412.434.8100
Matrix	412.261.2220
The Melting Pot	412.261.3477
Red Star Tavern	412.394.0100
Ref's Sports Bar & Game Room	412.594.7337
Saddle Ridge	412.434.6858
Sesame Inn	412.281.8282

<b>Comedy Club</b>	<b>Phone Number</b>
Funny Bone	412.281.3130

<b>Concert Venues/Live Music Spots</b>	<b>Phone Number</b>
Bar Louie	412.394.0500
Buckhead Saloon	412.232.3101
Gateway Clipper Fleet	412.355.7980
Hard Rock Cafe	412.481.7625
Red Star Tavern	412.394.0100

<b>Night Clubs &amp; Dancing</b>	<b>Phone Number</b>
Buckhead Saloon	412.232.3101
Margarita Mamas	412.434.8100
Matrix	412.261.2220
Saddle Ridge	412.434.6858

### Local Attraction

Benedum Center for Performing Arts	1.0 mi/1.6 km)
Carnegie Mellon University	6.0 mi/9.7 km)
Carnegie Science Center	1.0 mi/1.6 km)
Civic Arena	1.0 mi/1.6 km)
Coca-Cola Star Lake Amphitheatre	30.0 mi/48.3 km)
David L. Lawrence Convention Center	1.0 mi/1.6 km)
Duquesne Incline	1.0 mi/1.6 km)
Duquesne University	1.0 mi/1.6 km)
Gateway Clipper Fleet/Riverboat Cruises	0.1 mi/0.1 km)
Heinz Field	1.0 mi/1.6 km)
Heinz Hall For The Performing Arts	1.0 mi/1.6 km)
Kennywood Amusement Park	15.0 mi/24.1 km)
Monongahela Incline	0.1 mi/0.1 km)
Mt. Washington (Grandview Avenue View)	1.0 mi/1.6 km)
Pittsburgh Zoo & PPG Aquarium	12.0 mi/19.3 km)
PNC Park	1.0 mi/1.6 km)
Point Park College	1.0 mi/1.6 km)
Point State Park	1.0 mi/1.6 km)
Sandcastle	11.0 mi/17.7 km)
Station Square Gallery	0.1 mi/0.1 km)
University of Pittsburgh	6.0 mi/9.7 km)