

# PHYSOR 2010

Sheraton Station Square Hotel  
Pittsburgh, Pennsylvania, USA  
May 9-14, 2010

Advances in Reactor Physics to Power the Nuclear Renaissance

## CALL FOR PAPERS

Full Papers are solicited in the following technical areas: Nuclear Data; Deterministic and Monte Carlo Methods; Reactor Analysis and Optimization; Reactor Design and Operations; Nuclear Fuel Cycle; Nuclear Criticality Safety; Transient and Safety Analysis; Research Reactors and Spallation Sources; Integral Experiments and Facilities for Safety Research; Verification, Validation and Uncertainty Analysis; Fuel, Materials and Mechanical Analysis; Radiation Applications and Nuclear Safeguards; Nuclear Power and Sustainable Development.

For more information and latest news, please visit  
[www.physor2010.org](http://www.physor2010.org).

### Important Deadlines

October 31, 2009

February 28, 2010

April 16, 2010

May 9-14, 2010

Submission of Full Papers

Accepted / Revised Final Paper Submission

Registration Deadline

PHYSOR 2010 Topical Meeting



[www.physor2010.org](http://www.physor2010.org)  
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University of Pittsburgh



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Pittsburgh

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## Technical Topics and Tracks

Full Papers are to be submitted to one of the following tracks:

Track 1	<p><b><u>Nuclear Data</u></b></p> <ul style="list-style-type: none"> <li>• Nuclear Data Measurements</li> <li>• Cross Section Evaluations &amp; Libraries</li> <li>• Nuclear Data Testing &amp; Validation</li> <li>• Covariance Data</li> </ul>	Track 8	<p><b><u>Transient and Safety Analysis</u></b></p> <ul style="list-style-type: none"> <li>• 3D Transient Analysis Methods</li> <li>• Multi-Physics Reactor Simulations</li> <li>• Developments in Probabilistic Risk Assessments</li> <li>• Severe Accident Analysis and Mitigation</li> </ul>
Track 2	<p><b><u>Deterministic Transport Theory</u></b></p> <ul style="list-style-type: none"> <li>• Numerical Methods for Deterministic Transport</li> <li>• Iterative Acceleration of Deterministic Transport Methods</li> <li>• Hybrid Methods for Neutron Transport</li> <li>• High Performance Computing for Deterministic Transport</li> <li>• Analytical/Numerical Transport Benchmarks</li> <li>• Verification and Validation for Transport Methods</li> <li>• Deterministic Transport Methods on Unstructured Grids</li> <li>• Transport in Stochastic Media</li> <li>• Charged Particle Transport</li> </ul> <p><b><u>Special Session</u></b></p> <ul style="list-style-type: none"> <li>• Advances in Neutron Flux and Fluence Computational Methods</li> </ul>	Track 9	<p><b><u>Research Reactors and Spallation Sources</u></b></p> <ul style="list-style-type: none"> <li>• Applications of Research Reactors</li> <li>• Design Features of Research Reactors (Recently commissioned or under construction)</li> <li>• Physics Tests at Research Reactors</li> <li>• Code Validation Calculations on Research Reactors</li> <li>• Nuclear Characteristics of Medium and High Flux Research Reactors</li> <li>• International Cooperation on Utilization of Research Reactors</li> <li>• Accelerator and Spallation Physics</li> </ul>
Track 3	<p><b><u>Monte Carlo Methods</u></b></p> <ul style="list-style-type: none"> <li>• Monte Carlo Source Convergence Acceleration, Issues and Applications</li> <li>• Monte Carlo Depletion and Propagation of Uncertainty</li> <li>• Sensitivity Calculations using Monte Carlo Codes</li> <li>• Monte Carlo versus Deterministic Codes for Safety and Design Assessment</li> <li>• Monte Carlo Methods - General</li> <li>• Monte Carlo Variance Reduction Methods</li> </ul>	Track 10	<p><b><u>Integral Experiments and Facilities for Safety Research</u></b></p> <ul style="list-style-type: none"> <li>• Integral Experiments and Analysis</li> <li>• Reactor Physics Benchmarks</li> <li>• Capabilities of Experimental Facilities</li> </ul>
Track 4	<p><b><u>Reactor Analysis and Optimization</u></b></p> <ul style="list-style-type: none"> <li>• Reactor Analysis Methods</li> <li>• Lattice Physics Methods &amp; Validation</li> <li>• Homogenization &amp; Nodal Methods</li> <li>• Pin Power Reconstruction Methods</li> <li>• In-Core Fuel Management and Optimization</li> <li>• High-Performance Computing in Reactor Physics</li> </ul> <p><b><u>Special Sessions</u></b></p> <ul style="list-style-type: none"> <li>• 3D Depletion using Transport Methods</li> <li>• Special session in Memory of Rudi Stamm'ler</li> </ul>	Track 11	<p><b><u>Verification, Validation and Uncertainty Analysis</u></b></p> <ul style="list-style-type: none"> <li>• Reactor Physics Standards</li> <li>• Verification &amp; Validation Methods</li> <li>• Sensitivity/Uncertainty Analysis</li> </ul>
Track 5	<p><b><u>Reactor Design and Operation</u></b></p> <ul style="list-style-type: none"> <li>• Light-Water Reactor Design &amp; Analysis</li> <li>• Heavy-Water Reactor Design &amp; Analysis</li> <li>• Fast Reactor Design &amp; Analysis</li> <li>• Gas-Cooled Reactor Design &amp; Analysis</li> <li>• Advanced Reactor Designs</li> <li>• Reactor Operation and Control</li> <li>• Core Monitoring</li> <li>• Space Nuclear Power &amp; Propulsion</li> </ul>	Track 12	<p><b><u>Fuel, Materials and Mechanical Analysis</u></b></p> <ul style="list-style-type: none"> <li>• Fuel &amp; Materials Behavior</li> <li>• Fuel Performance Models</li> <li>• Challenges to Extend Burnup and Enrichment Limits</li> </ul>
Track 6	<p><b><u>Nuclear Fuel Cycle</u></b></p> <ul style="list-style-type: none"> <li>• Current Status: Technology, Policy and Socio-Economical Aspects</li> <li>• Advancements in the Front-End/Back-End of Fuel Cycle Technologies</li> <li>• Design, Analysis and Optimization Methods</li> <li>• Experimental Programs</li> <li>• Plutonium Management</li> <li>• Thorium Fuel Cycle</li> <li>• Transuranic Actinide Management</li> <li>• Fission Product Management</li> <li>• LWRs, CANDU, HTRs, and Fast Reactors in Fuel Cycle Scenarios</li> <li>• Deep Burn Reactor-Based Approaches</li> <li>• CANDLES &amp; Traveling-Wave and Other Approaches</li> <li>• Hybrid Systems for Energy Production and Waste Minimization</li> <li>• Fuel Cycle Scenarios for Nuclear as Sustainable Energy Source</li> <li>• Globalization of the Nuclear Fuel Cycles: Non-Proliferation, Resource Management, etc.</li> <li>• Uncertainty Quantification and Benchmark Efforts</li> </ul>	Track 13	<p><b><u>Radiation Applications and Nuclear Safeguards</u></b></p> <ul style="list-style-type: none"> <li>• Radiation Protection</li> <li>• Radiation Measurement and Dosimetry</li> <li>• Nuclear Techniques for Non-Proliferation</li> <li>• Nuclear Techniques for Homeland Security</li> <li>• Safeguards in Generation IV reactor concepts</li> <li>• Medical Physics Applications</li> </ul> <p><b><u>Special Session</u></b></p> <ul style="list-style-type: none"> <li>• Computational Medical Physics</li> </ul>
Track 7	<p><b><u>Nuclear Criticality Safety</u></b></p> <ul style="list-style-type: none"> <li>• Nuclear Criticality Safety</li> <li>• Burnup Credit</li> <li>• Nuclear Criticality Safety Benchmarks</li> <li>• Spent Fuel Disposition</li> </ul>	Track 14	<p><b><u>Nuclear Power and Sustainable Development</u></b></p> <ul style="list-style-type: none"> <li>• Nuclear Power &amp; Sustainable Development</li> <li>• Process Heat and Hydrogen Generation</li> <li>• Infrastructure Needs to Support the Nuclear Renaissance</li> </ul> <p><b><u>Panel</u></b></p> <ul style="list-style-type: none"> <li>• Reactor Physics Education &amp; Training Needs</li> </ul>