

M&C 2003 Technical Program - Preliminary

Room

Monday, April 7, 2003 - Morning

8:00 AM 8:30 AM **Welcome Addresses: Dr. Lee Riedinger, Deputy Laboratory Director for Science and Technology, ORNL** *Tennessee 3*

8:30 AM 9:45 AM ***Lecture 1: Deterministic Methods for First-Order Transport Equation, Larsen & Morel*** *Tennessee 3*

Ueki 8 Monte Carlo Variance Reduction *Tennessee 3*

10:00 AM 10:25 AM [049](#) MONTE CARLO ZERO-VARIANCE SCHEMES: THEORY, DEMONSTRATION AND PRACTICAL CONSEQUENCES
 10:25 AM 10:50 AM [045](#) VARIATIONAL VARIANCE REDUCTION FOR CRITICALITY CALCULATIONS USING MONTE CARLO ADJOINT FLUXES
 10:50 AM 11:15 AM [050](#) A CASE STUDY IN MANUAL AND AUTOMATED MONTE CARLO VARIANCE REDUCTION WITH A DEEP PENETRATION REACTOR SHIELDING PROBLEM
 11:15 AM 11:40 AM [043](#) A RESIDUAL MONTE CARLO METHOD FOR THERMAL RADIATION DIFFUSION

Toreja 14 CFD and Coupled Neutronics-Thermohydraulics *Tennessee 4*

10:00 AM 10:25 AM [078](#) MODIFIED NODAL INTEGRAL METHOD FOR THE THREE-DIMENSIONAL, TIME-DEPENDENT, INCOMPRESSIBLE NAVIER-STOKES EQUATIONS
 10:25 AM 10:50 AM [077](#) A HYBRID NODAL METHOD FOR TIME-DEPENDENT INCOMPRESSIBLE FLOW IN TWO-DIMENSIONAL ARBITRARY GEOMETRIES
 10:50 AM 11:15 AM [079](#) ANALYSIS OF STEADY STATE COUPLED BEHAVIOR IN A CANDU REACTOR CORE AT VARIOUS OPERATING CONDITIONS
 11:15 AM 11:40 AM [080](#) STUDIES WITH LARGE 3-D CORE MODELS FOR SIMULATOR PURPOSES

Prinja 9 Charged Particle Transport *Gardenview A,B*

10:00 AM 10:25 AM [047](#) MONTE CARLO ELECTRON DOSE CALCULATIONS USING DISCRETE SCATTERING ANGLES AND DISCRETE

ENERGY LOSSES

10:25 AM 10:50 AM [048](#) ELECTRON ENERGY DEPOSITION IN BINARY STATISTICAL MEDIA: A PDF APPROACH
 10:50 AM 11:15 AM [052](#) INVERSE PROBLEM FOR THE ELECTRON DEPTH-DOSE CURVE

Monday, April 7, 2003 - Afternoon

1:15 PM 2:30 PM **Lecture 2: Deterministic Transport Methods of the Second Order, Lewis** **Tennessee 3**

Larsen Ravetto 1 Deterministic Transport Theory Methods Tennessee 4

2:30 PM 2:55 PM [003](#) A VARIATIONAL P1-DP0 DIFFUSION THEORY FOR PLANAR GEOMETRY
 2:55 PM 3:20 PM [022](#) A HIGH-ORDER RIEMANN METHOD FOR THE BOLTZMANN TRANSPORT EQUATION
 3:20 PM 3:45 PM [009](#) NONNEGATIVE ANISOTROPIC PIECEWISE-AVERAGE MULTIGROUP CROSS SECTIONS
 3:45 PM 4:10 PM [020](#) STOCHASTIC NEUTRONICS WITH PANDA DETERMINISTIC CODE
 4:10 PM 4:35 PM [011](#) THE CP METHOD IN THREE DIMENSIONS: CRITICALITY OF A CUBE
 4:35 PM 5:00 PM [006](#) PROCEDURE TO OBTAIN THE ELEMENTARY SOLUTIONS OF THE MONOENERGETIC EQUATION OF NEUTRON TRANSPORT FOR NON-PLANE GEOMETRIES

Rombough 5 Monte Carlo Methods Tennessee 3

2:30 PM 2:55 PM [124](#) APPLICATION OF THE STOCHASTIC TRANSPORT THEORY TO REACTIVITY MEASUREMENTS IN A SUBCRITICAL ASSEMBLY DRIVEN BY A PULSED SOURCE
 2:55 PM 3:20 PM [037](#) IMPLEMENTATION OF CHORD LENGTH SAMPLING FOR TRANSPORT THROUGH A BINARY STOCHASTIC MIXTURE
 3:20 PM 3:45 PM [030](#) DIRECT SAMPLING OF MONTE CARLO FLIGHT PATHS IN MEDIA WITH CONTINUOUSLY VARYING CROSS-SECTIONS
 3:45 PM 4:10 PM [041](#) FEASIBILITY OF AN ADJOINT MONTE CARLO PULSE HEIGHT SPECTRUM CALCULATION
 4:10 PM 4:35 PM [044](#) MAXIMUM PRINCIPLE ANALYSIS OF MONTE CARLO METHODS FOR GREY RADIATIVE TRANSFER
 4:35 PM 5:00 PM [029](#) INTEGRAL EQUATION FORMULATION OF A MIXED DIFFUSION-JUMP MODEL OF ELASTIC SCATTERING

Gehin		11 Reactor Physics and Analysis		Gardenview A,B
2:30 PM	2:55 PM	024	CAPTURING THE EFFECTS OF UNLIKE NEIGHBORS IN SINGLE ASSEMBLY CALCULATIONS	
2:55 PM	3:20 PM	053	AN APPROACH FOR EFFECTIVE DANCOFF FACTOR CALCULATION	
3:20 PM	3:45 PM	065	TRANSPORT ANALYSES OF 2-D CANDU DIFFUSION CALCULATIONS	
3:45 PM	4:10 PM	055	STEADY STATE ANALYSIS OF MULTIGROUP DIFFUSION AND SPN METHODS IN AN MSLB-LIKE SITUATION USING THE CRONOS CODE SYSTEM	
4:10 PM	4:35 PM	054	REACTIVITY VOID COEFFICIENT IN MOX CORES USING THE APOLLO2 CODE. ANALYSIS OF THE MISTRAL3 EXPERIMENT	
4:35 PM	5:00 PM	063	FAST REACTOR BULK SHIELDING EXPERIMENTS FOR VALIDATION OF SHIELDING COMPUTATIONAL TECHNIQUES	

Tuesday, April 8, 2003 - Morning

8:00 AM 9:15 AM **Lecture 3: Monte Carlo Methods, Spanier** **Tennessee 3**

Anistratov		Mund		4 Acceleration Methods for Deterministic Transport		Tennessee 3
9:30 AM	9:55 AM	007	ON THE DEGRADED EFFECTIVENESS OF DIFFUSION SYNTHETIC ACCELERATION FOR MULTIDIMENSIONAL SN CALCULATIONS IN THE PRESENCE OF MATERIAL DISCONTINUITIES			
9:55 AM	10:20 AM	023	ANALYSIS OF TRANSPORT SYNTHETIC ACCELERATION FOR HIGHLY HETEROGENEOUS PROBLEMS			
10:20 AM	10:45 AM	005	ANGULAR DEPENDENT COARSE-MESH REBALANCE METHOD FOR ACCELERATION OF THE DISCRETE ORDINATES NEUTRON TRANSPORT CALCULATIONS			
10:45 AM	11:10 AM	004	A COMPARISON OF COARSE MESH REBALANCE AND COARSE MESH FINITE DIFFERENCE ACCELERATIONS FOR THE NEUTRON TRANSPORT CALCULATIONS			
11:10 AM	11:35 AM	008	ACCELERATION TECHNIQUE FOR MONOTONOUS NUMERICAL SCHEMES FOR BOLTZMAN TRANSPORT EQUATION			

Hendricks		18 Nuclear Data Analysis		Gardenview A,B
9:30 AM	9:55 AM	106	COMPREHENSIVE CROSS SECTION DATABASE DEVELOPMENT FOR GENERALIZED THREE DIMENSIONAL RADIATION TRANSPORT CODES: A STATUS REPORT	

9:55 AM	10:20 AM	034	STUDY OF PROPERTIES OF THE GELINA NEUTRON TARGET
10:20 AM	10:45 AM	152	AN EXISTENCE PROOF FOR A PROBLEM IN PROMPT GAMMA NEUTRON ACTIVATION ANALYSIS
10:45 AM	11:10 AM	057	DOPPLER CALCULATION CHALLENGE IN MOX LATTICES QUALIFICATION ON MINERVE OSCILLATION EXPERIMENT
11:10 AM	11:35 AM	105	NEUTRON CAPTURE OF ^{232}Th IN THE UNRESOLVED RESONANCE REGION – DATA CORRECTIONS AND ANALYSIS

Ingersoll	Davor	23a Computational Challenges for IRIS	Tennessee 4
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9:30 AM	9:55 AM	126	SAFETY FEATURES OF THE IRIS REACTOR
9:55 AM	10:20 AM	130	OVERVIEW OF COMPUTATIONAL CHALLENGES IN THE DEVELOPMENT OF EVALUATION MODELS FOR SAFETY ANALYSES OF THE IRIS REACTOR
10:20 AM	10:45 AM	127	DEVELOPMENT OF RELAP5 NODALIZATION FOR IRIS NON-LOCA TRANSIENT ANALYSES
10:45 AM	11:10 AM	129	THERMAL HYDRAULIC ANALYSIS OF IRIS REACTOR COILED TUBE STEAM GENERATOR
11:10 AM	11:35 AM	128	A SAS2H/KENO-V METHODOLOGY FOR 3D FULL CORE DEPLETION ANALYSIS

Chip Martin	30 Panel: Dev. in Software Eng. for High Consequence Software	Gardenview E
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Tuesday, April 8, 2003 - Afternoon

1:00 PM	2:15 PM	Lecture 4: Reactor Core Methods, Smith	Tennessee 3
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Lombardi	23b Computational Challenges for IRIS	Tennessee 4
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2:30 PM	2:55 PM	125	A MONTE CARLO SIMULATIONS APPROACH FOR IRIS INTERNAL SHIELDS OPTIMIZATION
2:55 PM	3:20 PM	132	DISCRETE ORDINATES ANALYSIS OF THE IRIS INTERNAL SHIELDS
3:20 PM	3:45 PM	131	THE EFFECT OF CORE MODELING APPROACH ON IRIS SHIELDING CALCULATIONS

16 Depletion, Fuel Management and Optimization Methods**Tennessee 4**

3:45 PM	4:10 PM	090	THIRD ORDER NODAL FORMULATION RELATING ASSEMBLY POWER AND REACTIVITY
4:10 PM	4:35 PM	091	INVESTIGATION OF THE SHIELDING SAFETY PROBLEM OF THE ROMANIAN VVR-S REACTOR SPENT FUEL STORAGE
4:35 PM	5:00 PM	089	NEW APPROACH USING MULTI-AGENTS: CORE DESIGN OPTIMIZATION OF BWR

Brown**6 Advances in Monte Carlo Codes & Analysis Tools****Tennessee 3**

2:30 PM	2:55 PM	027	ANALYSIS OF AND REFINEMENTS TO THE SABRINA VOLUME FRACTION ALGORITHM
2:55 PM	3:20 PM	028	MIX AND MATCH WITH MCNPX
3:20 PM	3:45 PM	038	3-D PLOTTING CAPABILITIES IN THE VISUAL EDITOR FOR RELEASE 5 OF MCNP
3:45 PM	4:10 PM	040	VERIFICATION OF MCNP5
4:10 PM	4:35 PM	067	APPLICATION OF MCNP CALCULATIONS TO CALIBRATION OF ANTHROPOMORPHIC PHANTOMS USED FOR ASSESSMENT OF ACTINIDES IN LUNGS
4:35 PM	5:00 PM	036	THE BASIC CONCEPTS OF GEOMETRY MODELLING AND CADINTERFACE IN RTS&T CODE

Geemert**13 Reactor Kinetics and Dynamics****Gardenview E**

2:30 PM	2:55 PM	074	TEMPORAL ADAPTIVE MULTIGRID CORRECTION METHOD FOR TRANSIENT NONLINEAR NODAL CALCULATIONS
2:55 PM	3:20 PM	075	POINT GENETICS: A NEW CONCEPT TO ASSESS DYNAMIC BEHAVIOR IN ACCELERATOR DRIVEN SYSTEMS
3:20 PM	3:45 PM	073	A PHENOMENOLOGICAL MODEL FOR THE EXPLANATION OF A STRONGLY SPACE-DEPENDENT DECAY RATIO
3:45 PM	4:10 PM	072	MIXED DUAL FINITE ELEMENT METHOD FOR THE SOLUTION OF THE 3D KINETIC SIMPLIFIED PN TRANSPORT EQUATIONS
4:10 PM	4:35 PM	076	ON APPLICATION OF QUASISTATIC AND POINT-KINETICS SCHEMES FOR SUBCRITICAL SYSTEMS WITH EXTERNAL NEUTRON SOURCE
4:35 PM	5:00 PM	001	MEASUREMENT-BASED ESTIMATION OF RESPONSE TIME PARAMETERS USED IN SAFETY ANALYSIS OF CANDU REACTORS

Rivard	Coulot	20 Medical Applications	Gardenview A,B
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2:30 PM	2:55 PM 116	MONTE CARLO BETA DOSE CALCULATION AT CELLULAR LEVEL FOR INTERNALLY DEPOSITED RADIONUCLIDES
2:55 PM	3:20 PM 118	DEPENDENCE OF BRACHYTHERAPY DOSIMETRY ON THE UNIFORMITY OF THE ISOTOPE PHYSICAL DISTRIBUTION
3:20 PM	3:45 PM 119	CLINICAL IMPLEMENTATION, VALIDATION AND USE OF THE DPM MONTE CARLO CODE FOR RADIOTHERAPY TREATMENT PLANNING
3:45 PM	4:10 PM 120	MONTE CARLO SIMULATION FOR LEKSELL GAMMA KNIFE® RADIOSURGERY PLAN VERIFICATION
4:10 PM	4:35 PM 117	DETECTION OF CHANGING DYNAMICS IN PHYSIOLOGICAL TIME SERIES
4:35 PM	5:00 PM 121	STUDY OF THE DOSE FIELDS ON THE THERAPY BEAM OF REACTOR BR-10

Wednesday, April 9, 2003 - Morning

8:00 AM	9:15 AM	Lecture 5: Resonance Theory in Reactor Applications, Hwang	Tennessee 3
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Warsa	Roman	24a Krylov Subspace Iterative Methods and Nuclear Applications	Gardenview E
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9:30 AM	9:55 AM 134	KRYLOV ITERATIVE METHODS APPLIED TO MULTIDIMENSIONAL SN CALCULATIONS IN THE PRESENCE OF MATERIAL DISCONTINUITIES
9:55 AM	10:20 AM 140	SOME REMARKS ON GMRES FOR TRANSPORT THEORY
10:20 AM	10:45 AM 137	UNCOLLIDED-FLUX PRECONDITIONING OF THE CONJUGATE GRADIENTS SOLUTION OF THE TRANSPORT EQUATION
10:45 AM	11:10 AM 139	THE EXPLICIT SLOPE SN DISCRETIZATION METHOD
11:10 AM	11:35 AM 135	KRYLOV SUBSPACE ITERATIONS FOR THE CALCULATION OF k-EIGENVALUES WITH SN TRANSPORT CODES

Leal	17 Nuclear Data Methods	Gardenview A,B
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9:30 AM	9:55 AM 108	PRACTICAL ALTERNATIVES TO EXPLICITLY GENERATING AND INVERTING DATA COVARIANCE MATRICES
9:55 AM	10:20 AM 109	A NEW APPROACH FOR CALCULATING AVERAGE CROSS SECTIONS IN THE UNRESOLVED ENERGY REGION

10:20 AM	10:45 AM	058	CONSTRUCTION OF FAST NEUTRON GROUP STRUCTURES USING CPXSD FOR SHIELDING PROBLEMS
10:45 AM	11:10 AM	110	PROCESSING OF PHOTON CROSS SECTIONS IN THE NEW AMPX SYSTEM
11:10 AM	11:35 AM	107	EXTENDED PROBABILITY TABLES FOR APPROXIMATING NEUTRON MULTIGROUP CROSS-SECTIONS

K. Ivanov Velkov **Advances in the Development, Qualification, and Application of Coupled 3-25 D Neutronics/Thermal-Hydraulic Code Systems** **Tennessee 3**

9:30 AM	9:55 AM	142	METHODOLOGY OF INTERNAL ASSESSMENT OF UNCERTAINTY FOR SAFETY ANALYSIS CODE
9:55 AM	10:20 AM	144	ANALYSIS OF EXERCISE 3 OF THE OECD/NRC BWR TURBINE TRIP BENCHMARK BY THE COUPLED CODE SYSTEM ATHLETQUABOX/CUBBOX
10:20 AM	10:45 AM	145	DEVELOPMENT AND VALIDATION OF A COUPLED CODE SYSTEM RETRAN-3D/MASTER
10:45 AM	11:10 AM	143	PEACH BOTTOM BWR TURBINE TRIP BENCHMARK PHASE 3: ANALYSIS OF FULL PLANT SYSTEM WITH 3D-NEUTRONICS USING RETRAN-3D
11:10 AM	11:35 AM	146	POLCA-T CODE VALIDATION AGAINST PEACH BOTTOM 2 END OF CYCLE 2 LOW-FLOW STABILITY TESTS

Hunter Palmtag **31a Poster Session: Codes and Benchmarks - Oral Briefing** **Tennessee 4**

9:30 AM	9:40 AM	099	OECD/NEA VVER-1000 MOX ASSEMBLY COMPUTATIONAL BENCHMARK
9:40 AM	9:50 AM	097	BENCHMARKING THE U.S. NRC NEUTRONICS CODES NEWT AND PARCS WITH THE VENUS-2 MOX CRITICAL EXPERIMENTS
9:50 AM	10:00 AM	092	VALIDATION OF THE MCNP-POLIMI CODE FOR THE SIMULATION OF NUCLEAR SAFEGUARDS EXPERIMENTS ON URANIUM AND PLUTONIUM METAL
10:00 AM	10:10 AM	096	3D DISPLAY OF VERY LARGE MCNPX AND MCNP LATTICES IN MORITZ
10:10 AM	10:20 AM	102	FORMS OF APPROXIMATE RADIATION TRANSPORT
10:20 AM	10:30 AM	100	APPROXIMATIONS TO THE DOMINANCE RATIO USING EFFECTIVE AND INFINITE MULTIPLICATION RESULTS
10:30 AM	10:40 AM	148	GIPGUI: A GRAPHICAL USER INTERFACE FOR THE GIP CROSS SECTION PREPARATION CODE
10:40 AM	10:50 AM	093	MCNP 5TM IMPROVEMENTS FOR WINDOWS PCS

10:50 AM	11:00 AM	101	DIFFUSION AND TRANSPORT ANALYSIS OF HIGHER MODE EIGENSYSTEMS
11:00 AM	11:10 AM	149	SAPHYR: A CODE SYSTEM FROM REACTOR DESIGN TO REFERENCE CALCULATIONS
11:10 AM	11:20 AM	104	ANALYSIS OF THE NRC PCA PRESSURE VESSEL DOSIMETRY BENCHMARK USING TRIPOLI-4.3 MONTE CARLO CODE AND ENDF/B-VI.4, JEF2.2 AND IRDF-90 LIBRARIES
11:20 AM	11:30 AM	150	PRESSURE VESSEL CALCULATIONS FOR VVER-440 REACTORS

Wednesday, April 9, 2003 - Afternoon

1:00 PM 2:15 PM

Lecture 6: Reactor Kinetics and Dynamics, Dorning

Tennessee 3

Holloway Drumm

24b Krylov Subspace Iterative Methods and Nuclear Applications

Gardenview E

2:30 PM	2:55 PM	136	RESOLUTION OF THE NEUTRON DIFFUSION EQUATION WITH SLEPc, THE SCALABLE LIBRARY FOR EIGENVALUE PROBLEM COMPUTATIONS
2:55 PM	3:20 PM	138	A MATRIX-FREE NEWTON METHOD FOR COUPLED NEUTRONICS THERMAL-HYDRAULICS REACTOR ANALYSIS
3:20 PM	3:45 PM	141	IMPLEMENTATION OF A NEWTON-BICGSTAB SOLVER TO TREAT THE STRONG NON-LINEARITY IN THE FORMOSA-B BOILING WATER REACTOR CORE SIMULATOR CODE
3:45 PM	4:10 PM	133	CONJUGATE GRADIENT METHOD TO SOLVE 3-D NEUTRON TRANSPORT EQUATION WITH ISOTROPIC SCATTERING

Petrović Pivoschenko

3 Deterministic Transport Applications & Analysis

Tennessee 3

2:30 PM	2:55 PM	012	FUEL ASSEMBLY CALCULATIONS USING THE METHOD OF DISCRETE ORDINATES
2:55 PM	3:20 PM	002	SPATIAL DIFFERENCING AND MESH SENSITIVITY IN TWO- AND THREE-DIMENSIONAL DISCRETE ORDINATES CODES
3:20 PM	3:45 PM	071	USE OF PARTISN 2.99 ON THE Y-12 NATIONAL SECURITY COMPLEX SGI HIGH-PERFORMANCE COMPUTER (MANHATTAN)
3:45 PM	4:10 PM	010	APPROXIMATE SN ALBEDO BOUNDARY CONDITIONS FOR TWO NON-MULTIPLYING REGIONS AROUND THE CORE OF NEUTRON FISSION CHAIN REACTING SYSTEMS

4:10 PM 4:35 PM [021](#) DIFFUSION-LIKE 3-D HETEROGENEOUS CORE CALCULATION WITH 2-D CHARACTERISTICS TRANSPORT CORRECTION BY NON-LINEAR ITERATION TECHNIQUE

4:35 PM 5:00 PM [019](#) ASYMPTOTIC ANALYSIS OF THE SPATIAL WEIGHTS OF THE ARBITRARILY HIGH ORDER TRANSPORT METHOD OF THE CHARACTERISTIC TYPE

Mosteller Sanchez

7 Monte Carlo Applications

Gardenview A,B

2:30 PM 2:55 PM [035](#) NEW METHODS FOR THE MONTE CARLO SIMULATION OF NEUTRON NOISE EXPERIMENTS

2:55 PM 3:20 PM [042](#) MONTE CARLO MODELING OF HIGH-ENERGY FILM RADIOGRAPHY

3:20 PM 3:45 PM [085](#) CALCULATION OF PULSE SHAPES FOR REENTRANT MODERATORS
3:45 PM 4:10 PM [039](#) MCNP BASED CALCULATION OF REACTIVITY LOSS IN CIRCULATING FUEL REACTORS

4:10 PM 4:35 PM [046](#) VALIDATION OF MONTEBURNS FOR MOX FUEL USING ARIANE EXPERIMENTAL RESULTS

4:35 PM 5:00 PM [026](#) MODIFICATION OF MCNP CODE FOR NEUTRON GAS PRESSURE SIMULATION

Sartori

31b Poster Session: Codes and Benchmarks - Oral Briefing

Tennessee 4

2:30 PM 2:40 PM [103](#) THEORETICAL ANALYSIS OF THE INVERSION POINT OF THE ISOTHERMAL REACTIVITY COEFFICIENT OF THE IPEN/MB-01 REACTOR

2:40 PM 2:50 PM [098](#) THE RESULTS OF COMPARISON OF BENCHMARK CALCULATIONS ANALYSIS FOR VVER FUEL CELLS AND ASSEMBLIES WITH DIFFERENT METHODS

2:50 PM 3:00 PM [151](#) SOME NEW OBSERVATIONS ON USING A FLUX-LIMITED DIFFUSION THEORY IN TRANSPORT CALCULATIONS

3:00 PM 3:10 PM [147](#) TECHNIQUE USED IN ACADEM CODE PACKAGE FOR EVALUATION OF FAST NEUTRON FLUENCE ON VVER-1000 REACTOR VESSEL

3:10 PM 3:20 PM [094](#) IMPLEMENTATION OF IAEA PHOTONUCLEAR DATA COMPILATIONS TO THE RTS&T GENERAL-PURPOSE TRANSPORT CODE, TEST CALCULATIONS OF PHOTONEUTRONS EMISSION FROM SURFACE OF URANIUM SPHERE IRRADIATED BY 28 MEV ELECTRONS

3:20 PM 3:30 PM [095](#) THE RTS&T CODE AS A TOOL FOR BENCHMARKING OF EVALUATED NUCLEAR DATA FILES

Thursday, April 10, 2003 - Morning

8:00 AM 9:15 AM **Lecture 7: Criticality Safety Methods, Whitesides** **Tennessee 3**

M. Adams Garcia 2 Advanced Numerical Methods for Deterministic Transport Tennessee 3

9:30 AM 9:55 AM [017](#) A PIECEWISE LINEAR FINITE ELEMENT BASIS WITH APPLICATION TO PARTICLE TRANSPORT

9:55 AM 10:20 AM [014](#) AN INTRA-NODAL FLUX EXPANSION FOR A HETEROGENEOUS COARSE MESH DISCRETE ORDINATES METHOD

10:20 AM 10:45 AM [018](#) PROGRESS ON ADAPTIVE DISCRETE-ORDINATES ALGORITHMS AND STRATEGIES

10:45 AM 11:10 AM [013](#) ON THE USE OF BIASED ANGULAR QUADRATURE FORMULAS FOR THE NUMERICAL TREATMENT OF PARTICLE TRANSPORT IN MEDIA WITH HIGHLY FORWARD-PEAKED SCATTERING

11:10 AM 11:35 AM [025](#) DEVELOPMENT OF A NEW RESONANCE SELF-SHIELDING METHODOLOGY BASED ON PROBABILITY TABLE INFORMATION

Ougouag 19 Physics and Methods of Gas-Cooled Reactors (All Invited) Tennessee 4

9:30 AM 9:55 AM [113](#) ANALYTICAL SOLUTION OF THE NEUTRON DIFFUSION EQUATION IN THREE-DIMENSIONAL CYLINDRICAL GEOMETRY FOR APPLICATION IN A NODAL METHOD

9:55 AM 10:20 AM [112](#) COMPARATIVE ANALYSIS OF PBMR CORE PHYSICS TEST PROBLEMS
10:20 AM 10:45 AM [115](#) MONTE CARLO CRITICALITY CALCULATIONS FOR A PEBBLE BED REACTOR WITH MCNP

10:45 AM 11:10 AM [114](#) EFFECTS OF SPATIAL VARIATIONS IN PACKING FRACTION ON REACTOR PHYSICS PARAMETERS IN PEBBLE-BED REACTORS

11:10 AM 11:35 AM [111](#) INVESTIGATION OF SOME MODELS AND APPROXIMATIONS APPLIED AT CALCULATION OF GT-MHR FUEL ASSEMBLIES

Imre **21 Kinetic Approximations in Subcritical Systems** **Gardenview A,B**

9:30 AM 9:55 AM [123](#) KINETIC APPROXIMATIONS AND NOISE THEORY IN SOURCE-DRIVEN SUBCRITICAL SYSTEMS
9:55 AM 10:20 AM [122](#) ON SOME FEATURES OF SPATIAL NEUTRON KINETICS FOR MULTIPLYING SYSTEMS

Tomasevic **22 Perturbation Theory and Variational Methods** **Gardenview A,B**

10:20 AM 10:45 AM [084](#) A LINEARIZED THEORY FOR NEAR-EQUILIBRIUM THERMAL RADIATIVE TRANSFER PROBLEMS
10:45 AM 11:10 AM [083](#) ON THE DEVELOPMENT OF AN EXPLICIT POLYNOMIAL FORM FOR HIGHER-ORDER ACCURATE QUANTIFICATION OF PERTURBATION EFFECTS IN NUCLEAR SYSTEMS
11:10 AM 11:35 AM [082](#) NUMERICAL SIMULATION OF CALIBAN REACTIVITY PERTURBATION EXPERIMENTS USING NEPTUNIUM-237 SAMPLES

Thursday, April 10, 2003 - Afternoon

Karve **Marleau** **10 Reactor Physics and Methods** **Tennessee 3**

1:00 PM 1:25 PM [061](#) ASYMPTOTIC SOLUTION OF THE TRANSVERSE INTEGRATED DIFFUSION EQUATION IN A NEAR-CRITICAL NODE
1:25 PM 1:50 PM [064](#) INVERSE METHOD APPLIED TO ADAPTIVE CORE SIMULATION
1:50 PM 2:15 PM [062](#) CONVERGENCE ANALYSIS OF THE NONLINEAR COARSE MESH FINITE DIFFERENCE METHOD
2:15 PM 2:40 PM [059](#) SPLITTING METHOD FOR SOLVING THE COARSE-MESH DISCRETIZED LOW-ORDER QUASIDIFFUSION EQUATIONS
2:40 PM 3:05 PM [060](#) CONSISTENT SPATIAL DISCRETIZATION OF THE LOW-ORDER QUASIDIFFUSION EQUATIONS ON COARSE GRIDS
3:05 PM 3:30 PM [056](#) FORMOSA-P RODDED 3-D/2-D GEOMETRY COLLAPSE METHODOLOGY

Bill Martin **12 Parallel and Distributed Computing** **Tennessee 4**

1:00 PM 1:25 PM [033](#) CELL BASED RANDOM NUMBER GENERATORS FOR REPRODUCIBLE MONTE CARLO SIMULATIONS

1:25 PM	1:50 PM	051	DESIGN, IMPLEMENTATION AND TESTING OF MERCURY: A PARALLEL MONTE CARLO TRANSPORT CODE
1:50 PM	2:15 PM	069	PARALLELIZATION OF THE PENELOPE MONTE CARLO PARTICLE TRANSPORT SIMULATION PACKAGE
2:15 PM	2:40 PM	015	TESTING AN EXPERT SYSTEM FOR SELECTION OF MESH AND DOMAIN DECOMPOSITION OF PARALLEL SN METHOD
2:40 PM	3:05 PM	068	PARALLEL DISTRIBUTION OF TRACKING FOR 3D NEUTRON TRANSPORT CALCULATION
3:05 PM	3:30 PM	070	IMPLEMENTATION OF MULTITHREADED COMPUTING IN THE MINOS NEUTRONICS FEM SOLVER OF THE CRONOS CODE

Blomquist Oliveira

15 Criticality and Safety Analysis

Gardenview A,B

1:00 PM	1:25 PM	031	ESTIMATION OF CHANGE IN k_{eff} DUE TO PERTURBED FISSION SOURCE DISTRIBUTION IN MCNP
1:25 PM	1:50 PM	032	STATIONARITY AND SOURCE CONVERGENCE DIAGNOSTICS IN MONTE CARLO CRITICALITY CALCULATION
1:50 PM	2:15 PM	087	THE STOCHASTIC PARAMETER SIMULATION SYSTEM: A WAVELET-BASED METHODOLOGY FOR "PERFECT" SIGNAL RECONSTRUCTION
2:15 PM	2:40 PM	088	SEQUENTIAL PROBABILITY RATIO TEST ROBUSTNESS WITH RESPECT TO SERIALY-CORRELATED SIGNALS
2:40 PM	3:05 PM	086	DETAILED ANALYSIS OF THE THIRD ZEUS CRITICAL EXPERIMENT WITH MCNP™*
3:05 PM	3:30 PM	016	DEVELOPMENT AND APPLICATIONS OF THE SPL METHODOLOGY FOR A CRITICALITY EIGENVALUE BENCHMARK PROBLEM