Workshop: PENTRAN 3-D Parallel Deterministic Sn Radiation Transport Applications using the PENTRAN code

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Day 1: Wednesday, 14 October 2015

0000 Welcome, Workshop Overview, and Code Distribution/Licensing Information (All)

0015 Parallel Systems at AFIT, Linux Basic Commands, **vi** file editing, etc.

0030 Parallel Computing Essentials and PENTRAN code

* Amdahl’s Law, Parallel Speedup, PENTRAN Code System Overview

0100 Introduction to PENMSH-XP

* Using PENMSH-XP for 3-D mesh generation, model, and solution/data visualization
* Model examples

0200 Break

0215 Parallel Job Execution with Complete Decomposition, Autotune parameters

0315 Parallel execution of the Zippy Reactor Model using PENTRAN, script options

* Angle, Energy, Space, Adaptive Differencing, Preconditioning

0345 Participant Exercise: Building the Zippy Reactor Model in PENMSH-XP

0415 PENDATA and PENMSH Plotting support: Zippy Model

0430 POWERPACK codes applied to the Zippy Model

0500 Break

0530 DEV-XS with GMIX Cross Section Generation

0600 Problem diagnostics available in PENTRAN output

0630 Independent classroom exploration of problems

0700 Complete work for the day

Day 2: Thursday, 15 October 2015

0000 Review of Day 1/Overview of Day 2

0015 Tips for efficient and effective parallel execution with PENTRAN

0030 YGROUP Code for Group Collapsing

0100 Forward, Adjoint, and Response functions using YGROUP with PENTRAN results

* Examples with Dual Range Coincidence Counter (DRCC) Model
* Group Collapse with DRCC Model; Response functions

0200 Break

0230 DPA Response in a Pressure Vessel Problem

* DPA response code, Sample calculation

0300 Takeda Problem Assigned Exercise:

Student end to end build, execute, analysis, plot, evaluate….

0430 Codes: pentran, penmshxp, pendata, penquad, qdotv, repro, repro-cm, powerpack, dxdydz, gmix,

gmerge, hmix, ohjoy (for njoy), scalform, ygroup, xsmcnp, mesh2mcnp, 3di

0500 Benchmarks with the PENTRAN Code, 1998 – Present

0600 Continued Student Exercises – Focus on Student Problems; Workshop End of Course