

Workshop

A three-part workshop has been organized for Sunday 2006 September 10, 8:30 to 17:00. It will consist of three sessions, as follows:

1. TRITON Session (ORNL) 8:30–12:00
2. PARCS Session (Purdue University) 13:00–16:30
3. DRAGON Session (Ecole Polytechnique de Montréal) 15:00 –17:00

Registration to the workshop is complimentary, thanks to generous financial support from Idaho National Laboratory and Battelle. Refreshments and a light lunch will be provided.

1. TRITON (ORNL)

TRITON control module has been developed in tandem with the development of the NEWT functional module of SCALE to support 2-D transport and depletion calculations (<http://www.ornl.gov/sci/scale/overview/triton.htm>). It is a new, special-purpose, physics package developed under USNRC support for MOX core analysis. It enables depletion calculations to be performed by coordinating iterative calls between the generalized-geometry discrete-ordinates transport code, NEWT, and the point-depletion code, ORIGEN-S. It has also been extended to use the 3-D Monte Carlo transport codes KENO V.a and KENO VI for depletion calculations in place of NEWT.

Workshop topics:

- Description of NEWT
- Description of TRITON
- Applications of TRITON
- Coupling Between PARCS & TRITON (if time permits)

2. PARCS (Purdue Advanced Reactor Core Simulator)

PARCS is a 3-D reactor core simulator that solves the steady-state and kinetics neutron diffusion or SP3 transport equations (<https://engineering.purdue.edu/PARCS>). It is selected by the USNRC as its best-estimate core neutronics code.

Workshop topics:

- Description of PARCS
- Coupling Between PARCS and RELAP5/TRACE
- Applications of PARCS

3. DRAGON (Ecole Polytechnique de Montréal)

DRAGON is a 3-D multi-group, neutron-transport code that solves the steady-state neutron-transport equation using either the collision-probability method or the method of characteristics (<http://www.polymtl.ca/nucleaire/DRAGON/en/index.php>). It includes an isotopic depletion module and can process various formats of microscopic cross-section libraries. It is designed for general geometry. One can copy DRAGON free of charge.

Workshop topics:

- Description of DRAGON
- Self-Shielding
- 3-D Characteristics
- Applications of DRAGON