OAK RIDGE National Laboratory

AGENDA

ORNL IS MANAGED BY UT-BATTELLE, LLC FOR THE US DEPARTMENT OF ENERGY

Molten Salt Reactor

February 11-12, 2019
Oak Ridge National Laboratory

Registration: https://caslmeetings.ornl.gov/msr-workshop-and-training/

Monday, February 11, 2019: VERA Workshop
Location: CASL VOCC Space, Building 5700, Room B302

8:15 AM	**Arrive**	
8:30 AM	Welcome by CASL Director	Dave Kropaczek (ORNL/CASL)
8:45 AM	Introduction to VERA	Ben Collins (ORNL/CASL)
9:30 AM	MPACT – 3D Pin-Resolved Neutron Transport	Shane Stimpson (ORNL/CASL)
10:00 AM	**Break**	
10:30 AM	CTF – Whole-Core Sub-Channel T/H	Bob Salko (ORNL/CASL)
11:00 AM	ORIGEN – Isotopic Depletion and Decay	Will Wieselquist (ORNL/SCALE)
11:30 AM	BISON – Advanced Fuel Performance	Russell Gardner (INL/CASL)
12:00 PM	**Working Lunch** - VERA Input and Execution	Scott Palmtag (NCSU/CASL)
1:00 PM	MAMBA – 3D Pin-Wise CRUD Growth	Ben Collins (ORNL/CASL)
1:45 PM	Shift – Hybrid Monte Carlo Particle Transport	Kat Royston (ORNL/CASL)
2:30 PM	**Break**	
3:00 PM	Integrated Testing and Releases	Ben Collins (ORNL/CASL)
3:30 PM	VERAView – VERA Data Visualization Tool	Ron Lee (ORNL/CASL)
4:00 PM	CASL Applications and Validation	Andrew Godfrey (ORNL/CASL)
4:30 PM	**End of Workshop**	

Abstract
This workshop will provide detailed descriptions of the methods and software employed in VERA for commercial PWR simulations and analysis, as well as demonstrations of the use of VERA and discussions of a sample of application results and validation performed by CASL. Physics areas covered will be neutronics, thermal-hydraulics, fuel mechanics, CRUD/chemistry, and isotopic depletion and decay. Presenters will be CASL staff which are lead code developers and/or SMEs in their field.

Event Contacts:
Will Cramer – (865) 574-9970 – cramerwh@ornl.gov
Ben Collins – (865) 576-6985 – collinsbs@ornl.gov

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Tuesday, February 12, 2019: VERA MSR Hands-on Training
Location: CASL VOCC Space, Building 5700, Room B302

8:15 AM	**Arrive**	
8:30 AM	Morning Session 1: • Introduction to VERA MSR • Connecting to HPC and submitting jobs	
9:15 AM	Morning Session 2: • Introduction to CTF Input • Input for MSRE single loop	Ben Collins (ORNL)
10:00 AM	**Break**	Bob Salko (ORNL)
10:30 AM	Morning Session 3: • Extending MSRE to full core • Adaption of models for other MSR designs	
12:00 PM	**Lunch** – ORNL Cafeteria	
1:00 PM	Afternoon Session 1: • Introduction to MPACT Input • Building 2D MSRE unit cell • Extending to 3D model • Coupling with CTF	Aaron Graham (ORNL)
2:30 PM	**Break**	
3:00 PM	Afternoon Session 2: • Extending MSRE to full core • Time dependence, removal/addition • Adaption of models for other MSR designs	Cole Gentry (ORNL)
4:30 PM	**End of Training**	

Abstract

The hands-on user training will include an introduction to VERA-MSR methodology. An introduction to the model builder interface for CTF will be demonstrated as well how to run jobs on the HPC machine. Hands-on exercises will progress from a small loop model based on MSRE to a full MSRE model. Likewise, an introduction to the MPACT input and output will be discussed and models will be built ranging in size from a small 2D unit cell problem to the full MSRE core. The student will then learn how to couple MPACT to CTF and examine the behavior of precursor drift in the system. Finally, the students will learn how to define depletion along with feed and removal terms. After Day 2, users will understand how to perform basic core analysis with VERA-MSR using couplings between MPACT, CTF, and ORIGEN.

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