Optional Workshop

**Demonstration Title:** Neutronics Modeling with CASMO, SIMULATE, and GARDEL: Nuclear Fuel Management, Reactivity Management, and Core Monitoring with State-of-the-Art, NQA-1 Engineering Tools

**Time:** 13:00 – 17:00 on Saturday, October 16, 2021

**Workshop Demonstration Limit:** Maximum 30 people

**Prerequisites and Equipment:** No equipment needed. No Core Design experience needed, but nuclear engineering education/background is highly advised.

**Summary:** Modern nuclear engineering and reactor engineering staff expect State-of-the-Art tools which provide on-demand simulation and information about the core characteristics as new challenges face the global LWR fleet. Flexible Power Operations, Accident Tolerant Fuels, and new LWRs are all capable of being modeled in the Studsvik Scandpower Core Management System Suite. This workshop will introduce users to CASMO5 and SIMULATE5 via the Graphical User Interface, CMSBuilder, and build a core model depletion. That core model depletion will be used in the Reactor Engineering graphical user interface called GARDEL to model reactivity management scenarios such as Flexible Power operations, and other reactivity management activities.

**Agenda:**

1. Lecture: Brief introduction into neutronics modeling methods
2. In-Software Demonstration: Generation of CASMO5 and SIMULATE5 inputs in CMSBuilder Graphical User Interface
3. In-Software Demonstration: Running cases and analyzing results
4. Lecture: Introduction to GARDEL Core Monitoring and Reactivity Management
5. In-Software Demonstration: Using GARDEL for reactivity management