



## Colloquium

Department of Engineering and  
System Science,  
Institute of Nuclear Engineering  
and Science,  
National Tsing Hua University

### High-Fidelity and Multi-Physics Numerical Simulation for Advanced Nuclear Reactor Technology

**Dr. Haomin (Kirk) Yuan,**  
**Principle Nuclear Engineer,**  
Nuclear Science and Engineering Division,  
Argonne National Laboratory

- At Argonne Nuclear Science and Engineering division, we are interested in helping the nuclear industry to develop their technologies with our high-fidelity CFD tools by leveraging world-leading supercomputers.
- Beyond thermal-hydraulic simulations, we also perform analysis together with other physics, such as neutronic, structure dynamics, electro-chemistry, structure corrosion, etc, to better understand these advanced reactor designs.
- In this presentation, several collaborations with nuclear industry will be covered along with some code development under DOE NEAMS project.

15:30-17:20 P.M., Wednesday, Dec 28<sup>th</sup>, 2022

NE69 ESS Building, NTHU

101, Sec2, Kaung-Fu Rd., Hsinchu 300044, Taiwan

## Biography:

### Current Position

- Principle Nuclear Engineer

### Education

- University of Wisconsin-Madison, Madison, Wisconsin, USA  
Ph.D. in Nuclear Engineering
- Tsinghua University, Beijing, China  
B.S. in Nuclear Engineering

### Work experience

- Nuclear and Reactor Engineer, Argonne National Laboratory
- Postdoctoral Researcher, Argonne National Laboratory

### Research experience

- Study of liquid fuel and coolant flow in SSR
- Numerical simulation of coolant flow in FHR
- Developing an electrochemical system solver for Molten Salt Reactor application
- Numerical simulation of turbulence coolant flow in HTGR

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