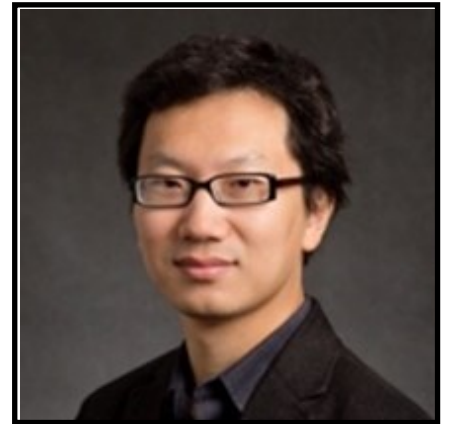


# Nuclear Engineering Seminar

## Dr. Yang Zhang

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**Wednesday, March 30, 2022**  
**3:30pm | PHYS 112**

**Emergent Molecular Structure and Molecular Fluid Mechanics of Molten Salts**

### Abstract

Liquids, ubiquitous in the universe, are prototypical disordered condensed matter. However, the physics of liquids and complex fluids is far from being completely understood, especially at interfaces, driven away from equilibrium, or under extreme conditions. Our group strikes to stand at the forefront of molecular-level understanding of liquid state physics using a combination of accelerated atomistic simulations, stochastic dynamics theories, and neutron scattering experiments. Lately, we are attracted to molten salts for two reasons: the intriguing molecular structures emerged from Coulomb interaction and the resurrected interest in molten salt reactors. In this seminar, I will talk about our recent studies of the emergent molecular structures and their role in the macroscopic viscoelasticity and transport properties of three model molten salts:  $\text{ZnCl}_2$ , CKN, and FLiNaK.

YZ is an associate professor and a Donald Biggar Willett Faculty Scholar in Department of Nuclear, Plasma, and Radiological Engineering, Department of Electrical and Computer Engineering, Program of Computational Science and Engineering, Illinois Robotics Group, Center for Autonomy, Center for Biophysics and Quantitative Biology, and Beckman Institute of Advanced Science and Technology at University of Illinois at Urbana-Champaign. He is also the Associate Head for Graduate Programs of Department of Nuclear, Plasma, and Radiological Engineering. He received his B.S. in Electrical Science and Technology from University of Science and Technology of China in 2004 and his Ph.D. in Nuclear Science and Engineering from Massachusetts Institute of Technology in 2010. He was a Clifford G. Shull Fellow at Oak Ridge National Laboratory from 2010 to 2012. YZ's research can be summarized into two words: Matter and Machine.