

*Prof Yang Zhao*

*University of Illinois at Urbana-Champaign*

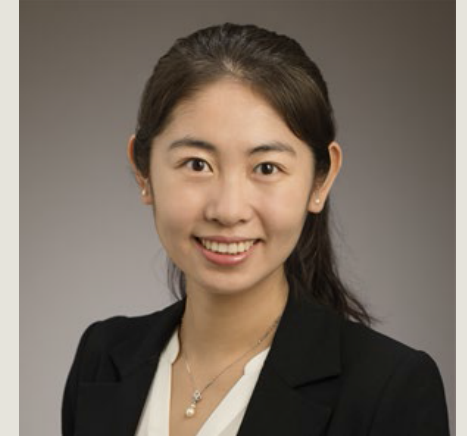
## **Chiral nanophotonics, a new platform for visualizing conformational changes of biomolecules in-situ**

I will discuss how light can be sculpted with engineered nanostructures to enhance chiral light-matter interactions. With these nanostructures, we have developed metamaterial biosensors and optical force nanoscopes to detect and visualize molecular chirality with high sensitivity and resolution. Specifically, we have designed a multilayer twisted metamaterial sensor which can detect down to zeptomoles of proteins within milliseconds. Additionally, we have developed a metamaterial-enhanced atomic force microscope to image chiral optical forces with nanometer spatial resolution and piconewton force sensitivity. We use this technique to measure the chirality of DNA molecules, on the order of few tens of molecules. These studies provide a foundation for new sensing and imaging techniques at the single molecular to cellular level in-situ and in real time.

**When: Noon Wednesday 28 April 2021 (Sydney time)**

**Join by zoom <https://macquarie.zoom.us/j/85829287435>**

**Or Multipurpose Room, 2.300 7WW**



Yang Zhao is an assistant professor at the University of Illinois, Urbana-Champaign, Department of Electrical and Computer Engineering. Her lab develops nano-optical and nanophotonic tools including metamaterials and optical force nanoscopy, applying them for imaging and sensing across subwavelength to wavelength scales.