



Department of Physics and Astronomy  
FALL 2023 Colloquium Series

# “Bending and Weighing with Light: a Day in the Life of a Biophysicst”

Dr. Jing Xu  
*UC Merced*

Exploring the interplay between light and matter lies at the heart of physics. Maxwell's equations elegantly capture the fundamentals of these interactions, and their applications unlock exciting discoveries in our natural world. In my lab, we employ techniques rooted in these fundamental principles to tackle pressing questions in both biology and physics. Today, I'll introduce two cutting-edge methods: optical trapping and mass photometry, explaining their basic principles using familiar physics concepts like refraction, reflection, scattering, and interference. Furthermore, I'll delve into how we utilize these techniques to gain insights into the mechanics and structure of vital components within our body's cells. Our ultimate goal is to uncover the design principles governing nature's machines, which we anticipate will enable novel material development.

**Thursday, October 5, 2023**  
**4:00 - 5:20PM**

MND1015

*Open & Free to all students, faculty and public*