

# CHEMISTRY & BIOCHEMISTRY SEMINAR SERIES:

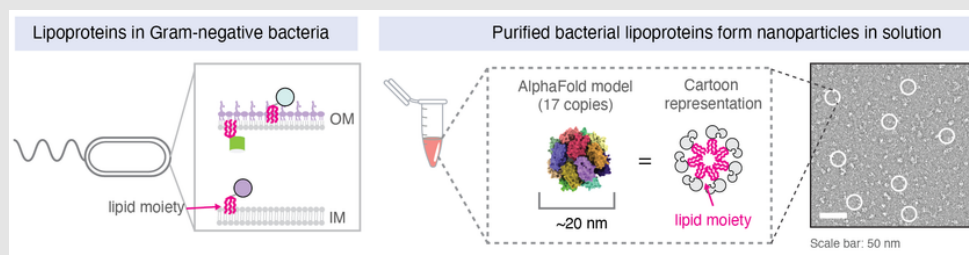
## Bacterial Lipoproteins: from bacteria to biomaterials

### Abstract:

Bacterial lipoproteins are anchored to cellular membranes via a covalently attached lipid moiety. These proteins play key roles in bacterial physiology, including cell signaling, nutrient acquisition, and host-pathogen interactions. In our previous studies, we unexpectedly found that when bacterial lipoproteins are extracted from their native membranes they spontaneously self-assemble into nanoparticles in solution. We are now leveraging this property to develop novel lipoprotein-based nanoparticles for a broad range of biomedical applications.



**Naima Sharaf**  
Assistant Professor of Biology  
Stanford University



### About the Speaker:

Dr. Naima Gabriela Sharaf graduated from the University of North Carolina at Chapel Hill with a bachelor's degree in chemistry. She earned her Ph.D. in Dr. Angela Gronenborn's lab at the University of Pittsburgh, where she investigated inhibitor-induced conformational changes in HIV-1 reverse transcriptase using fluorine solution NMR. She completed her postdoctoral training at Caltech in Dr. Doug Rees' lab, where she used x-ray crystallography and single-particle cryo-EM to characterize the structure and function of the *Neisseria meningitidis* methionine ABC transport system. This study sparked Dr. Sharaf's current interest in lipoproteins, specifically their roles in bacterial physiology and potential in vaccine design. The Sharaf Lab conducts research that bridges biochemistry, biology, microbiology, and immunology in order to translate lipoprotein research into therapeutics.