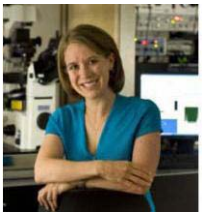 **Christy Haynes, Ph.D.**

University of Minnesota

“Nanoparticle Toxicity and Therapeutics"

Abstract: Engineered nanoparticles are found in many everyday products and hold great potential as therapeutic agents. Accordingly, it is critical to consider how engineered nanoparticles interact with physiological and ecological systems. The Haynes lab focuses on functional assessment of immune cell or bacterial cell behavior following exposure to noble metal and metal oxide nanoparticles. Functional considerations include cell delivery of chemical messengers, production of reactive oxygen species, and gene expression, among others. The goal of this work is to discover critical nanoparticle features that determine cellular toxicity and then redesign nanoparticles to minimize unintentional toxicity. In parallel, the Haynes group is focused on designing a nanoscale therapeutic platform based on core-shell mesoporous silica nanoparticles. Their high drug loading capacity, easy surface functionalization, and good biocompatibility position these nanoparticles to have a broad clinical impact. Together these two topics encapsulate the Haynes groups’ viewpoint that engineered nanoparticles can be made safely and sustainably to have significant societal benefits.

Brief Bio: Christy completed her undergraduate work at Macalester College - external link in St. Paul, MN (1998) with a major in Chemistry and minors in Mathematics and Spanish. Christy's doctoral work was done at Northwestern University - external link in Evanston, IL (2003) under the direction of Richard P. Van Duyne - external link. Her doctoral thesis title is "Fundamentals and Applications of Nanoparticle Optics and Surface-Enhanced Raman Scattering." Before arriving at the University of Minnesota, Christy performed postdoctoral research in the laboratory of R. Mark Wightman - external link at the University of North Carolina, Chapel Hill - external link (2005). Her efforts in the Wightman lab focused on applying microelectrode amperometry to probe single cell exocytosis.