

1145-41-1979

**Jacob D Austin\*** (jacob.austin@my.simpson.edu), 701 N C Street, Unit 3056, Indianola, IA 50125, **Katlyn V York** (katlyn.york@my.simpson.edu), 701 N C Street, Unit 4140, Indianola, IA 50125, and **Kaylee R Grabarkewitz** (kaylee.grabarkewitz@my.simpson.edu), 701 N C Street, Unit 3305, Indianola, IA 50125. *Theoretical Nanoparticle Light Scattering.*

We present an experimental method to dynamically determine the composition, in terms of shape and size, of a mixture of nanoparticles suspended in water. This method is based on the use of the Discrete Dipole Approximation (DDA) to predict the scattering pattern of light incident on the sample. In this report we present a general background to light scattering, including Maxwell's equations, Stokes vectors, and cross sections. The theory of the DDA is reviewed and applied to shapes constructed of silver nanocubes and gold nanospheres. We give examples of the application of this method to various sample types and discuss applications and limitations. Theoretical results are then compared to experimental data. (Received September 24, 2018)