1119-70-64 **Martin M Schauer*** (schauer@lanl.gov), **William T Buttler**, **Shabnam Monfared**, **Daniel Sorenson**, **Daniel Frayer**, **Brandon Lalone**, **Gerald Stevens** and **William Turley**.

Particle size distributions from angular light scattering data.

The angular intensity distribution of light scattered from a particle is strongly dependent on the size of that particle and can be calculated using the solution to Maxwell's equations due to Gustav Mie. The angular intensity distribution of light scattered from a collection of particles with different sizes will be the sum of the contributions from each particle size weighted by the abundance of particles in that size range. This problem is not uniquely invertible: that is, different distributions of particle sizes can result in the same angular light intensity distribution. We report here on measurements of size distributions for particles ejected from tin target surfaces subjected to explosively-driven shock waves. In this work a least-squares method was used to extract the size distribution from the light scattering pattern with constraints on the size and form of the distribution provided by data from optical holography experiments. I will show the results of these experiments, in particular as to how they relate to results of other measurements and how the surface features on the tin targets influence the size distribution. (Received February 05, 2016)