Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Holographic Characterization of Colloidal Fractal Aggregates[1] CHEN WANG, New York University, FOOK CHIONG CHEONG, DAVID B. RUFFNER, Spheryx, Inc., XIAO ZHONG, MICHAEL D. WARD, DAVID G. GRIER, New York University — In-line holographic microscopy images of micrometer-scale fractal aggregates can be interpreted with the Lorenz-Mie theory of light scattering and an effective-sphere model to obtain each aggregates size and the population-averaged fractal dimension. We demonstrate this technique experimentally using model fractal clusters of polystyrene nanoparticles and fractal protein aggregates composed of bovine serum albumin and bovine pancreas insulin. This technique can characterize several thousand aggregates in ten minutes and naturally distinguishes aggregates from contaminants such as silicone oil droplets.

[1]Work supported by the SBIR program of the NSF

David Grier
New York Univ NYU

Date submitted: 11 Nov 2016 Electronic form version 1.4