

Abstract Submitted
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Temperature measurements of inverse micelles coated in gold nanoparticles using fluorescence CHAD DALEY, JAMES A. FORREST, RYAN SPELLER, TOEWS WILLIAM, PATRICK MCVEIGH, Dept. of Physics and Astronomy, University of Waterloo, TODD EMRICK, Dept. of Polymer Science and Engineering, UMass Amherst — When nanoparticles are subject to laser radiation they have the ability to efficiently absorb energy from the beam and transform this energy into heat. Photothermal therapy uses this phenomenon to irreparably damage tissue surrounding nanoparticle conjugates. Despite the promise of this technique, there is no consensus on the damage mechanism or even the local heating. Here we present an experiment designed to measure local temperatures achieved in such processes. Ligand covered Gold nanoparticles are used to stabilize inverse micelles containing fluorescence dye in the water component. The fluorescence intensity being temperature dependent provides us with a means of measuring the temperature of the micelles as a function of time immediately following a laser pulse.

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