

## Plasmono-magnetic Material for Precise Photothermal Heating

*Mikhail Ladanov<sup>1+</sup>, Surya Cheemalapati<sup>1+</sup>, Hao Wang<sup>1</sup>, Yuan Yuan<sup>1</sup>, Piyush Koria<sup>1</sup>, and Anna*

*Pyayt<sup>1\*</sup>*

Department of Chemical and Biomedical Engineering, University of South Florida, Tampa, FL  
33647, USA

*<sup>+</sup>Indicates equal contributions*

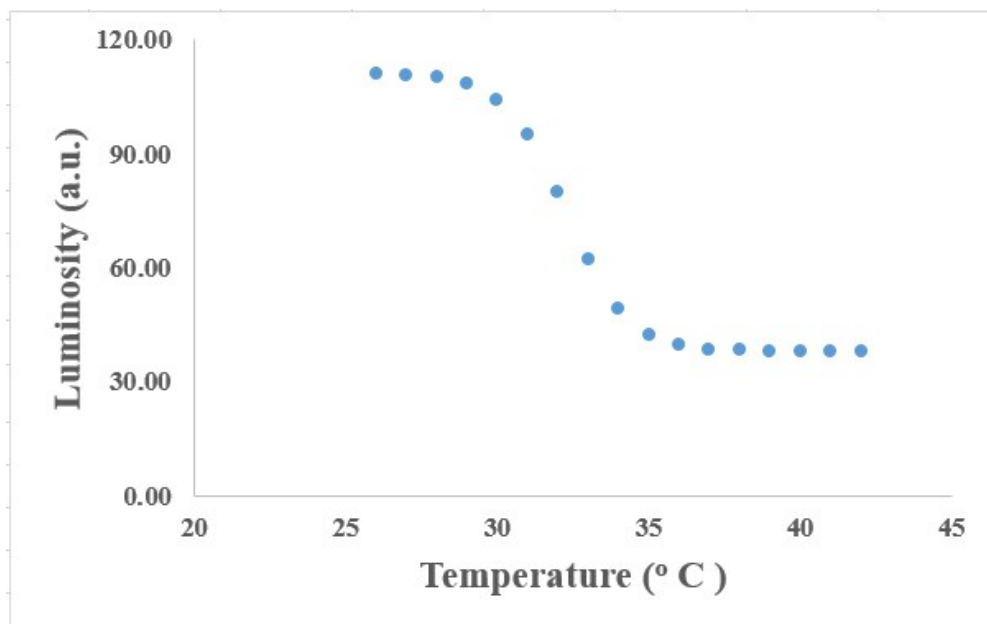
**KEYWORDS** Gold nanocages, plasmonic heating, magnetic microbeads

**SUPPLEMENTARY INFORMATION**

Temperatures of the suspensions of the magnetic beads decorated with gold nanocages was determined using a transfer function with the values shown in Table 1 and plot in figure S1. The relationship between image luminosity and the temperature can be described using equation (1). The luminosity  $L$  at any given temperature is a function of the minimum luminosity ( $L_2$ ), maximum luminosity ( $L_1$ ) and the transition constants. Transition temperature,  $T_t$  is the center of the linear slope where maximum luminosity change occurs over temperature change  $dT$ .

**Table S1.** The luminosity  $L_1$  at 25 °C and  $L_2$  at 42 °C extracted from the Figure 3. The rest of luminosity values at different temperatures were estimated using Equation (1) and plotted in Figure S1.

<b>Figure 3</b>			
<b>Temperature (° C)</b>		<b>Luminosity (a.u.)</b>	
<b>Maximum</b>	<b>42</b>	<b>38.00</b>	<b>L2 (Minimum)</b>
	41	38.01	
	40	38.03	
	39	38.09	
	38	38.24	
	37	38.65	
	36	39.75	
	35	42.56	
	34	49.19	
	33	62.07	
	32	79.77	
	31	95.25	
	30	104.29	
	29	108.38	
	28	110.01	
	27	110.63	
	26	110.86	
<b>Minimum</b>	<b>25</b>	<b>111.00</b>	<b>L1 (Maximum)</b>



**Figure S1.** The luminosity-temperature transfer function for the experiment shown in Figure 3 corresponding to the data from Table S1.