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**Prof. dr. L. (Naomi J.) Halas**

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September 26, 2017

Dear Prof. Halas,

On behalf of the co-authors, I am hereby submitting our manuscript entitled ‘***Gold nanoparticles as absolute nano-thermometers***’ for your consideration for publication in Nano Letters. As outlined below, we present a novel **calibration-free** method for optical nano-thermometry.

Our method access the absolute temperature of gold nanoparticles by measuring the photoluminescence emission spectra. Therefore, it capitalizes the unique optical properties of gold nanoparticles such as stable photoluminesnce emission and their nanometric size to probe subdifraction volumes. More importantly, it has the advantage of avoiding temperature calibrations, being non-invasive and easy to implement in a regular microscope with spectral capabilities. As a proof of principle, we used the method to optically access the temperature of resonantly-illuminated gold nanorods and the temperature of their surrounding media with an accuracy of 2%.

We believe that our method will be especially useful for further development of photothermal therapy, where nanoparticles are used as nano-heaters to kill tumor cells and the temperature reached during the process is of paramount importance. Given the novelty and expected impact of this work, we believe it would be of great interest to the broad audience of Nano Letters and that this journal will be the appropriate dissemination vehicle for it.

Thank you for your consideration of our work.

Sincerely,

Prof. Michel Orrit.