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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 accesses the absolute temperature of gold nanoparticles by measuring their Stokes and anti-Stokes photoluminescence spectra. Therefore, it capitalizes on the unique optical properties of gold nanoparticles such as stable photoluminescence and their nanometric size to probe sub-diffraction-limit volumes. More importantly, it has the advantages of avoiding temperature calibrations, of being non-invasive and easy to implement in a regular microscope with spectrometric capabilities. As a proof of principle, we used the method to access the temperature of the nanorods themselves and the temperature of the surrounding medium 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.

Thank you for your consideration of our work.

Sincerely,

Prof. Michel Orrit.