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Supplementary Information for

Mutiphoton Absorption in Europium (III) doped YVO_4 Nanoparticles

*Dominika Wawrzynczyk, Marcin Nyk and Marek Samoc**

Institute of Physical and Theoretical Chemistry, Wroclaw University of Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland

AUTHOR INFORMATION

* Corresponding author: marek.samoc@pwr.wroc.pl, tel: + 48 71 320-44-66, fax: + 48 71 320-33-64, Wroclaw University of Technology, Institute of Physical and Theoretical Chemistry, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland

Figure S1. Low-resolution TEM image of the synthesized YVO_4:5%Eu^{3+} NPs with rod-like morphology and sizes between 20 nm and 30 nm.

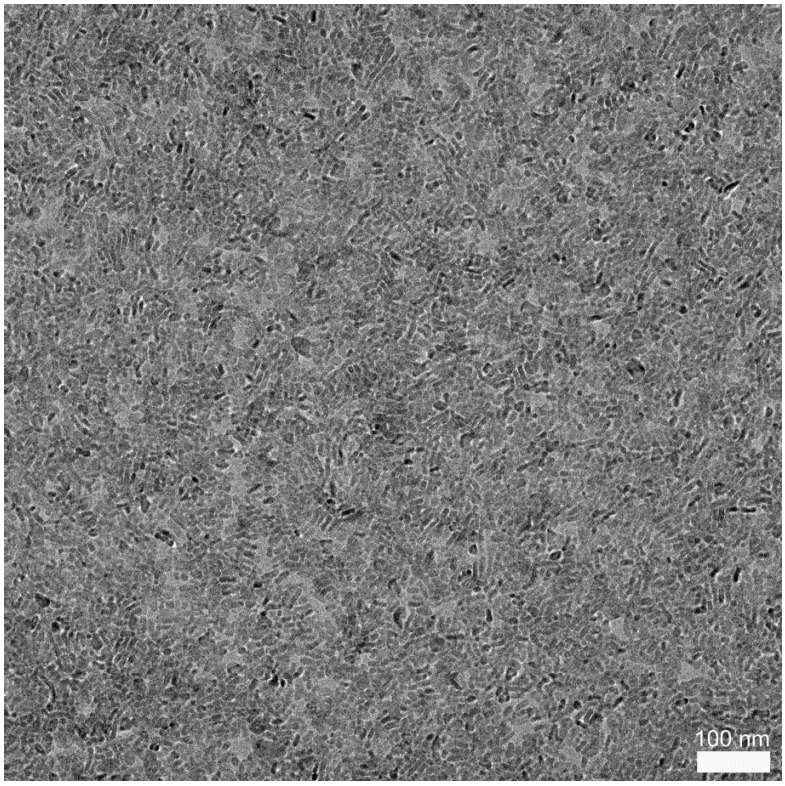
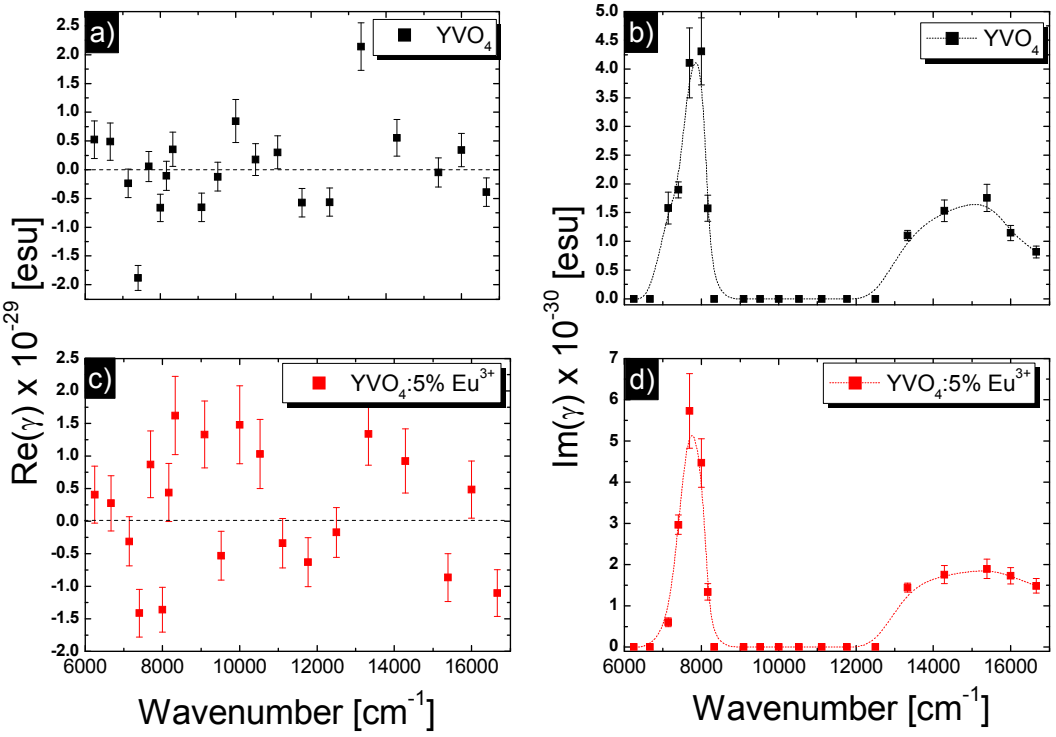


Figure S2. Dispersion of the real and imaginary parts of the complex hyperpolarizability γ of YVO_4 NPs (a, b) and YVO_4:5%Eu^{3+} NPs (c, d) determined from Z-scan measurements in chloroform solutions containing 0.5% w/w of the NPs. The lines at Im(γ) plots were added just as the guide for the eye.



The presentation of the data in the form of the complex cubic hyperpolarizability assumes that the nonlinear response of the investigated species is purely cubic. Analysis of Z-scans traces measured at longer wavelengths (1200 nm – 1400 nm) indicated that this assumption is not fulfilled there, and most probably we observe higher-order NLO response in that wavelength range.