

Supporting information for:

Silver Nanowires as Receiving-Radiating Nanoantennas in Plasmon-Enhanced Up-Conversion Processes

D. Piatkowski^{1,2,*}, N. Hartmann¹, T. Macabelli¹, M. Nyk³, S. Mackowski², A. Hartschuh¹

¹ Department Chemie and CeNS, Ludwig-Maximilians-Universität München, 81377 München, Germany

² Institute of Physics, Faculty of Physics, Astronomy and Informatics,
Nicolaus Copernicus University, Grudziadzka 5, 87-100 Torun, Poland

³ Institute of Physical and Theoretical Chemistry, Wrocław University of Technology,
Wybrzeże Wyspiańskiego 27, 50-370 Wrocław, Poland

* corresponding author: dapi@fizyka.umk.pl

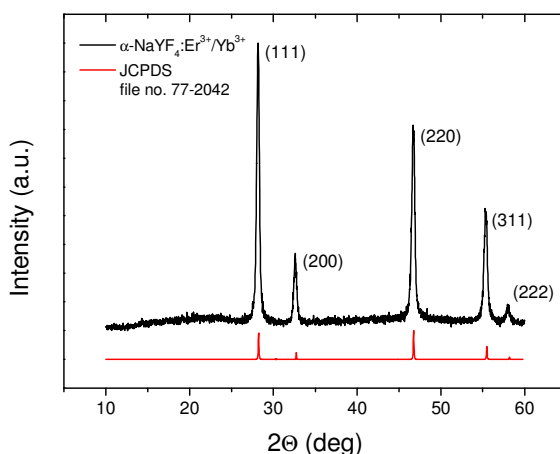


Fig. 1S. X-ray diffraction pattern of the NaYF₄:Er³⁺/Yb³⁺ nanocrystals.
The JCPDS no. 77-2042 line pattern (for α-NaYF₄) is shown for reference.

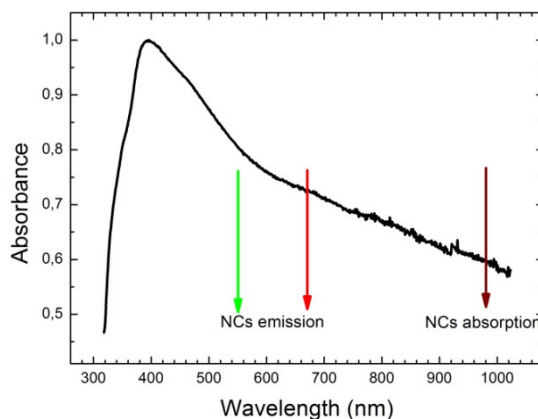


Fig. 2S. Extinction spectrum of colloidal silver nanowires.
Arrows denote emission and absorption lines of NaYF₄:Er³⁺/Yb³⁺ nanocrystals.

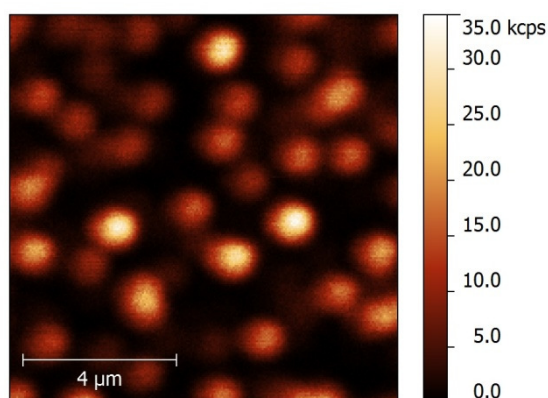


Fig. 3S. Fluorescence of $\text{NaYF}_4:\text{Er}^{3+}/\text{Yb}^{3+}$ nanocrystals imaged using a confocal microscope. The excitation was 980 nm 5 mW CW laser diode.

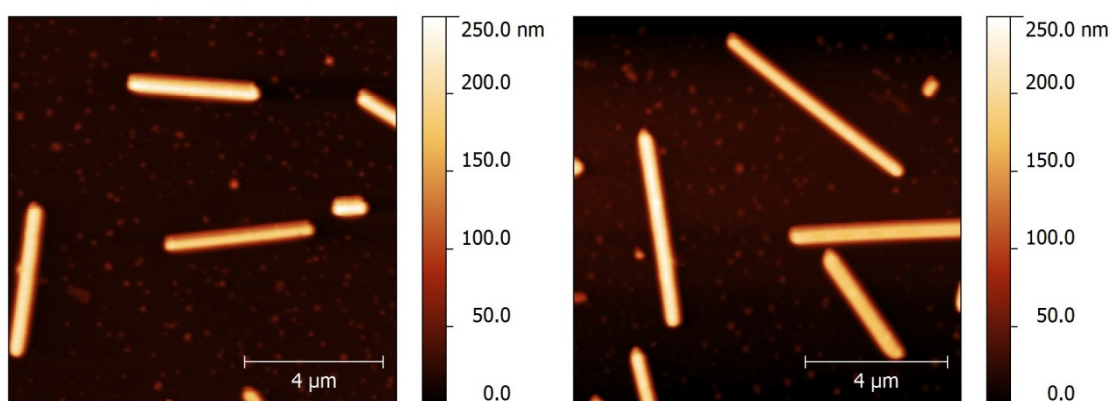


Fig. 4S. Single silver nanowires surrounded by $\text{NaYF}_4:\text{Er}^{3+}/\text{Yb}^{3+}$ nanocrystals observed by AFM microscope.

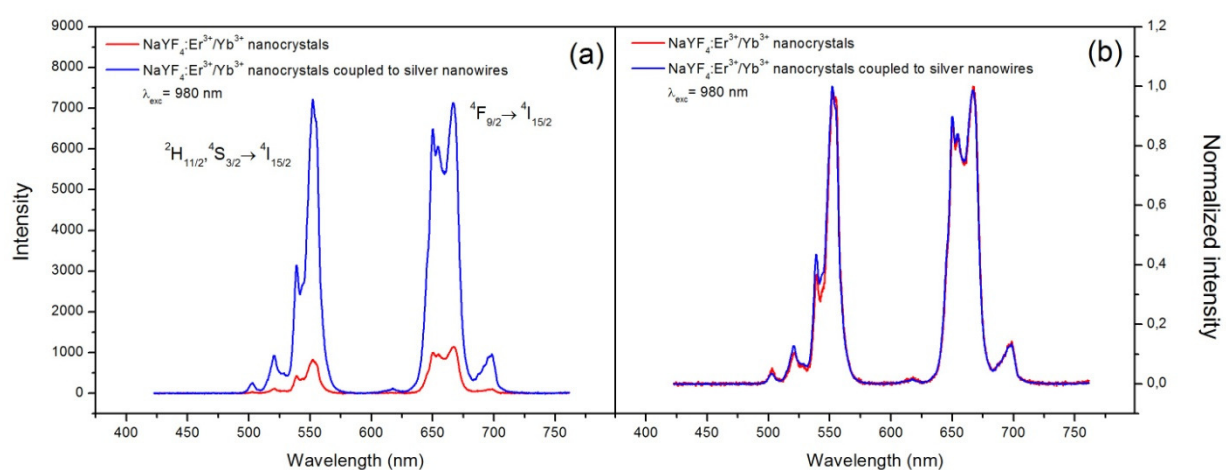


Fig. 5S. Up-conversion emission spectra of uncoupled nanocrystals (red) and nanocrystals coupled to silver nanowires (blue). Figure (a) presents raw data and relative intensity enhancement, (b) normalized emission spectra.